Minnesota State Medical Association, Annual Meeting, Duluth, June 29-30 and July 1, 1942

MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

PUBLISHED MONTHLY BY THE MINNESOTA STATE MEDICAL ASSOCIATION

FEBRUARY, 1942

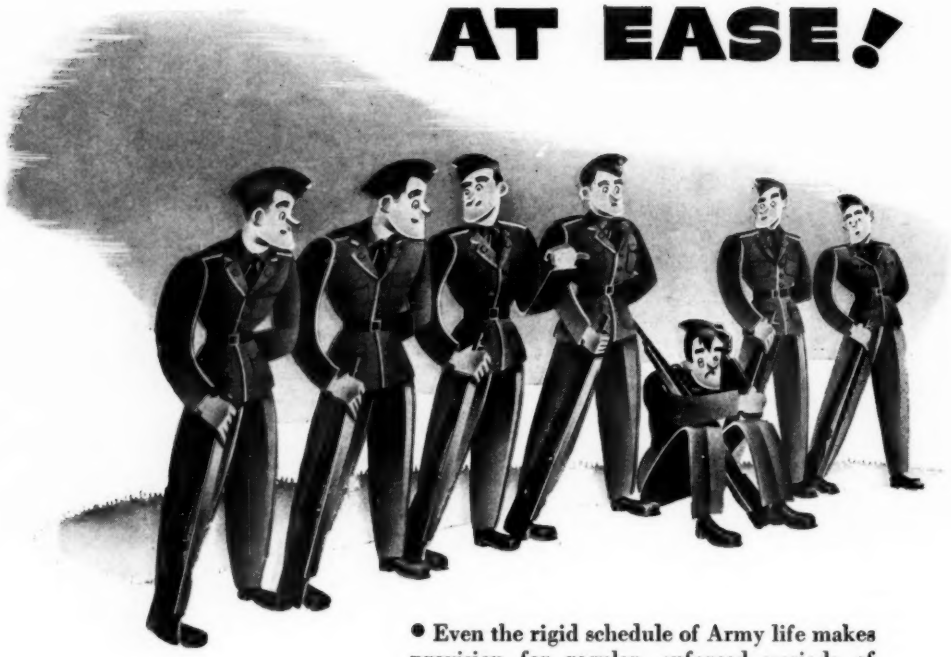
Volume 25 — Number 2 **40 cents a copy — $3.00 a year**

Contents

Entered at the Post Office in Minneapolis as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

Printed in U. S. A.

AT EASE!



• Even the rigid schedule of Army life makes provision for regular, enforced periods of relaxation.

Not so in the stepped-up-tempo of civilian life. There's usually no one but the doctor to call a halt to his patient's hectic routine. When treatment for constipation is indicated, remember Petrogalar's advantages.

It provides a bland, unabsorbable fluid to augment the moisture in the stool and helps establish a regular, comfortable bowel movement.

Petrogalar* helps soften hard, dry feces and aids in bringing about a well-formed yielding mass that usually responds to normal peristaltic impulses.

Consider Petrogalar in the treatment of constipation.

FOR THE TREATMENT OF CONSTIPATION

Petrogalar

*Trade Mark. Petrogalar is an aqueous suspension of pure mineral oil each 100 cc. of which contains 65 cc. pure mineral oil suspended in an aqueous jelly containing agar and acacia.

Petrogalar Laboratories, Inc. • 8134 McCormick Boulevard • Chicago, Illinois

Minnesota State Medical Association

OFFICERS

H. Z. Giffin, M.D.	*President*	Rochester
N. H. Baker, M.D.	*First Vice President*	Fergus Falls
†S. B. Haessly, M.D.	*Second Vice President*	Faribault
B. B. Souster, M.D.	*Secretary*	Saint Paul
W. H. Condit, M.D.	*Treasurer*	Minneapolis
B. J. Branton, M.D.	*Past President*	Willmar
W. W. Will, M.D.	*Speaker, House of Delegates*	Bertha
E. A. Meyerding, M.D.	*Vice Speaker, House of Delegates*	Saint Paul
R. R. Rosell	*Executive Secretary*	Saint Paul

COUNCILORS*

First District
L. A. Buie, M.D. (1944).....Rochester

Second District
L. L. Sogge, M.D. (1944).....Windom

Third District
C. M. Johnson, M.D. (1943).....Dawson

Fourth District
A. E. Sohmer, M.D. (1942).....Mankato

Fifth District
E. M. Jones, M.D. (1943).....Saint Paul

Sixth District
S. H. Baxter, M.D. (1942).....Minneapolis

Seventh District
E. J. Simons, M.D. (1943).....Swanville

Eighth District
W. L. Burnap, M.D. (1942) (Chairman)..Fergus Falls

Ninth District
F. J. Elias, M.D. (1944).....Duluth

HOUSE OF DELEGATES, AMERICAN MEDICAL ASSOCIATION*

Members

W. A. Coventry, M.D. (1942).....Duluth
A. W. Adson, M.D. (1942).....Rochester
F. J. Savage, M.D. (1943).....Saint Paul
J. M. Hayes, M.D. (1943).....Minneapolis

Alternates

J. C. Hultkrans, M.D. (1942).....Minneapolis
W. L. Burnap, M.D. (1942).....Fergus Falls
George Earl, M.D. (1943).....Saint Paul
W. W. Will, M.D. (1943).....Bertha

SCIENTIFIC COMMITTEES

COMMITTEE ON SCIENTIFIC ASSEMBLY

H. Z. Griffin, M.D., General Chairman.....Rochester
B. J. Branton, M.D.....Willmar
R. R. Rosell.....Saint Paul

Section on Medicine

W. H. Aurand, M.D.....Minneapolis
F. J. Hirschboeck, M.D.....Duluth

Section on Surgery

A. N. Collins, M.D.....Duluth
J. T. Priestley, M.D.....Rochester

Section on Specialties

W. H. Hengstler, M.D.....Saint Paul
T. R. Fritsche, M.D.....New Ulm

Local Arrangements

T. G. Clement, M.D.....Duluth

COMMITTEE ON CANCER*

M. W. Alberts, M.D. (1944).....Saint Paul
Herbert Boysen, M.D. (1943).....Madelia
O. J. Campbell, M.D. (1942).....Minneapolis
B. J. Gallagher, M.D. (1942).....Waseca
O. J. Hagen, M.D. (1942).....Moorhead
E. C. Hartley, M.D. (1943).....Saint Paul
J. R. Manley, M.D. (1944).....Duluth
Martin Nordland, M.D. (1942).....Minneapolis
W. T. Peyton, M.D. (1944).....University
H. B. Troost, M.D. (1943).....Mankato
Waltman Walters, M.D. (1943).....Rochester
W. C. MacCarty, M.D., (Sr.) (1944) (ex officio)....Rochester

†Deceased.
*Terms expire December 31, of year indicated.

COMMITTEE ON FRACTURES

R. C. Webb, M.D., General Chairman.....Minneapolis

Executive Committee on Fractures

R. C. Webb, M.D.....Minneapolis
R. B. Bray, M.D.....Biwabik
C. L. Eckhardt, M.D.....Austin
H. W. Goehrs, M.D.....Saint Cloud
V. P. Hauser, M.D.....Saint Paul
A. R. Reff, M.D.....Crookston
W. C. Stillwell, M.D.....Mankato
A. L. Vadheim, M.D.....Tyler
Nels Westby, M.D.....Madison
O. W. Yoerg, M.D.....Minneapolis

COMMITTEE ON INDUSTRIAL HEALTH

J. L. McLeod, M.D.....Grand Rapids
H. B. Allen, M.D.....Austin
L. S. Arling, M.D.....Minneapolis
G. L. Berdez, M.D.....Duluth
F. J. Elias, M.D.....Duluth
L. W. Foker, M.D.....Minneapolis
T. A. Lowe, M.D.....South Saint Paul
L. G. Rigler, M.D.....University
E. E. Scott, M.D.....Saint Paul
S. E. Sweitzer, M.D.....Minneapolis
D. D. Turnacliff, M.D.....Minneapolis
A. E. Wilcox, M.D.....Minneapolis
H. G. Wood, M.D.....Rochester

COMMITTEE ON DIABETES

J. R. Meade, M.D.....Saint Paul
A. H. Beard, M.D.....Minneapolis
S. H. Boyer, M.D. (Jr.).....Duluth
W. H. Halloran, M.D.....Jackson
R. C. Hunt, M.D.....Fairmont
H. H. Leibold, M.D.....Parkers Prairie
E. H. Rynearson, M.D.....Rochester
M. M. Sarnecki, M.D.....Saint Paul
G. T. Evans, M.D. (ex officio).....University

HEART COMMITTEE*

H. L. Ulrich, M.D. (1942) ..... Minneapolis
J. M. Adams, M.D. (1944) ..... Minneapolis
A. R. Barnes, M.D. (1942) ..... Rochester
H. E. Binet, M.D. (1943) ..... Grand Rapids
C. A. Boline, M.D. (1943) ..... Battle Lake
J. F. Borg, M.D. (1944) ..... Saint Paul
C. S. Donaldson, M.D. (1944) ..... Foley
C. N. Hensel, M.D. (1943) ..... Saint Paul
F. R. Huxley, M.D. (1942) ..... Faribault
Charles Koenigsberger, M.D. (1944) ..... Mankato
D. W. Wheeler, M.D. (1942) ..... Duluth
S. M. White, M.D. (1943) ..... Minneapolis

COMMITTEE ON SYPHILIS AND SOCIAL DISEASES

P. A. O'Leary, M.D. ..... Rochester
C. D. Freeman, M.D. ..... Saint Paul
W. E. Hatch, M.D. ..... Duluth
H. G. Irvine, M.D. ..... Minneapolis
F. W. Lynch, M.D. ..... Saint Paul
J. F. Madden, M.D. ..... Saint Paul
H. E. Michelson, M.D. ..... Minneapolis
M. A. Nicholson, M.D. ..... Duluth
E. Z. Shapiro, M.D. ..... Duluth

COMMITTEE ON CONSERVATION OF HEARING

Horace Newhart, M.D. ..... Minneapolis
L. R. Boies, M.D. ..... Minneapolis
W. L. Burnap, M.D. ..... Fergus Falls
C. E. Connor, M.D. ..... Saint Paul
K. R. Fawcett, M.D. ..... Duluth
F. E. Harrington, M.D. ..... Minneapolis
H. I. Lillie, M.D. ..... Rochester
E. A. Loomis, M.D. ..... Minneapolis
H. A. Roust, M.D. ..... Montevideo
J. T. Schlesselman, M.D. ..... Mankato
Andrew Sinamark, M.D. ..... Hibbing
G. E. Strate, M.D. ..... Saint Paul
D. L. Tilderquist, M.D. ..... Duluth
G. H. Walker, M.D. ..... Winona
W. T. Wenner, M.D. ..... Saint Cloud
L. M. Elstad (ex officio) ..... Faribault
H. E. Hartig (ex officio) ..... University

COMMITTEE ON OPHTHALMOLOGY

T. R. Fritsche, M.D. ..... New Ulm
W. L. Benedict, M.D. ..... Rochester
E. P. Burch, M.D. ..... Saint Paul
F. P. Frisch, M.D. ..... Willmar
J. B. Gaida, M.D. ..... Saint Cloud
H. W. Grant, M.D. ..... Saint Paul
F. N. Knapp, M.D. ..... Duluth
J. S. Reynolds, M.D. ..... Minneapolis
R. A. Salter, M.D. ..... Virginia
J. L. Shellman, M.D. ..... Saint Paul
G. E. Strout, M.D. ..... Minneapolis

COMMITTEE ON HOSPITALS AND MEDICAL EDUCATION

A. H. Wells, M.D. ..... Duluth
D. C. Balfour, M.D. ..... Rochester
F. W. Behmler, M.D. ..... Morris
P. G. Boman, M.D. ..... Duluth
A. F. Branton, M.D. ..... Willmar
C. D. Creevy, M.D. ..... University
H. S. Diehl, M.D. ..... University
E. J. Engberg, M.D. ..... Faribault
W. P. Gardner, M.D. ..... Anoka
R. F. Mueller, M.D. ..... Two Harbors
W. H. Valentine, M.D. ..... Tracy
C. J. Watson, M.D. ..... University
W. A. O'Brien, M.D. (ex officio) ..... University

COMMITTEE ON PUBLIC HEALTH NURSING

C. A. Scherer, M.D. ..... Duluth
R. A. Beise, M.D. ..... Brainerd
A. E. Cardle, M.D. ..... Minneapolis
T. C. Davis, M.D. ..... Wadena
T. F. Hammermeister, M.D. ..... New Ulm
A. G. Liedloff, M.D. ..... Markato
J. H. McClanahan, M.D. ..... White Bear
O. F. Mellby, M.D. ..... Thief River Falls
W. O. B. Nelson, M.D. ..... Fergus Falls
R. B. Tweedy, M.D. ..... Winona
M. E. Withrow, M.D. ..... International Falls

COMMITTEE ON MATERNAL HEALTH

R. J. Moe, M.D. ..... Duluth
C. J. Ehrenberg, M.D. ..... Minneapolis
A. Gullixson, M.D. ..... Albert Lea
A. B. Hunt, M.D. ..... Rochester
J. L. McKelvey, M.D. ..... University
R. D. Mussey, M.D. ..... Rochester
C. M. Robilliard, M.D. ..... Faribault
W. H. Rumpf, M.D. ..... Saint Cloud
L. H. Rutledge, M.D. ..... Detroit Lakes
J. H. Simons, M.D. ..... Minneapolis
J. J. Swendson, M.D. ..... Saint Paul
A. O. Swenson, M.D. ..... Duluth
V. O. Wilson, M.D. ..... Minneapolis

*Terms expire December 31, of year indicated.

COMMITTEE ON MEDICAL TESTIMONY

E. M. Hammes, M.D. ..... Saint Paul
B. S. Adams, M.D. ..... Hibbing
H. B. Annis, M.D. ..... Minneapolis
L. A. Barney, M.D. ..... Duluth
J. F. Norman, M.D. ..... Crookston
W. G. Workman, M.D. ..... Tracy

COMMITTEE ON CHILD HEALTH

R. L. J. Kennedy, M.D. ..... Rochester
L. R. Critchfield, M.D. ..... Saint Paul
F. G. Hedenstrom, M.D. ..... Saint Paul
H. F. Helmholz, M.D. ..... Rochester
R. A. Jensen, M.D. ..... University
R. A. Johnson, M.D. ..... Minneapolis
C. O. Kohlbry, M.D. ..... Duluth
J. A. Myers, M.D. ..... Minneapolis
Lillian L. Nye, M.D. ..... Saint Paul
L. F. Richdorf, M.D. ..... Minneapolis
M. J. Nydahl, M.D. ..... Saint Paul
V. O. Wilson, M.D. ..... Minneapolis
Irvine McQuarrie, M.D. (ex officio) ..... University

COMMITTEE ON MILITARY AFFAIRS

Col. F. L. Smith ..... Rochester
Lt. Col. J. J. Catlin ..... Buffalo
Lt. C. J. Fritsche ..... New Ulm
Major Z. E. House ..... Cass Lake
Lt. Col. R. B. Hullsiek ..... Saint Paul
Col. R. T. Knight ..... Minneapolis
Capt. G. C. MacRae ..... Duluth
Comdr. D. McCarthy ..... Minneapolis
Lt. Col. J. J. Morrow ..... Austin
Lt. Col. F. S. Richardson ..... Minneapolis
Lt. C. S. Strathern ..... Saint Peter
Lt. Col. W. G. Workman ..... Tracy

HISTORICAL COMMITTEE

M. C. Piper, M.D. ..... Rochester
H. B. Annis, M.D. ..... Minneapolis
A. C. Baker, M.D. ..... Fergus Falls
Richard Bardon, M.D. ..... Duluth
L. E. Claydon, M.D. ..... Red Wing
T. E. Flinn, M.D. ..... Redwood Falls
C. I. Oliver, M.D. ..... Graceville
M. O. Oppegaard, M.D. ..... Crookston
W. L. Palmer, M.D. ..... Albert Lea
C. L. Scofield, M.D. ..... Benson
G. E. Sherwood, M.D. ..... Kimball
L. G. Smith, M.D. ..... Montevideo
J. A. Thabes, M.D. (Sr.) ..... Brainerd
J. M. Armstrong, M.D. (ex officio) ..... Saint Paul

COMMITTEE ON VACCINATION AND IMMUNIZATION

L. R. Critchfield, M.D. ..... Saint Paul
A. J. Chesley, M.D. ..... Saint Paul
F. M. Feldman, M.D. ..... Rochester
M. McC. Fischer, M.D. ..... Duluth
E. T. Fitzgerald, M.D. ..... Morris
F. E. Harrington, M.D. ..... Minneapolis
E. J. Huenekens, M.D. ..... Minneapolis
E. A. Kilbride, M.D. ..... Worthington
C. B. McKaig, M.D. ..... Pine Island
J. C. Mickelson, M.D. ..... Mankato
R. B. J. Schoch, M.D. ..... Saint Paul

COMMITTEE TO STUDY MOTOR VEHICLE ACCIDENTS

J. C. Hultkrans, M.D. ..... Minneapolis
M. W. Binger, M.D. ..... Rochester
W. A. Coventry, M.D. ..... Duluth
P. W. Harrison, M.D. ..... Worthington
Kano Ikeda, M.D. ..... Saint Paul
L. A. Steffens, M.D. ..... Red Wing
J. A. Thabes, M.D. (Sr.) ..... Brainerd
M. N. Walsh, M.D. ..... Rochester
F. W. Whitmore, M.D. ..... Saint Paul

COMMITTEE TO STUDY PSYCHOPATHIC PERSONALITIES

G. R. Kamman, M.D. ..... Saint Paul
A. G. Dumas, M.D. ..... Minneapolis
L. R. Gowan, M.D. ..... Duluth
R. C. Gray, M.D. ..... Cambridge
J. C. McKinley, M.D. ..... University
J. C. Michael, M.D. ..... Minneapolis
F. P. Moersch, M.D. ..... Rochester
W. L. Patterson, M.D. ..... Fergus Falls
M. C. Petersen, M.D. ..... Willmar
G. N. Ruhberg, M.D. ..... Saint Paul

COMMITTEE ON FIRST AID AND RED CROSS

J. S. Lundy, M.D. ..... Rochester
L. C. Barr, M.D. ..... Albert Lea
E. S. Bolevn, M.D. ..... Stillwater
W. C. Chambers, M.D. ..... Blue Earth
Lennox Danielson, M.D. ..... Litchfield
D. H. Garlock, M.D. ..... Bemidji
C. C. Kennedy, M.D. ..... Minneapolis
W. A. Lee, M.D. ..... Fergus Falls
C. H. Mead, M.D. ..... Duluth
A. B. Stewart, M.D. ..... Owatonna

COMMITTEE ON TUBERCULOSIS

J. A. Myers, M.D. ..... Minneapolis
R. N. Barr, M.D. ..... Saint Paul
L. V. Berghs, M.D. ..... Owatonna
H. A. Burns, M.D. ..... Ah-gwah-ching
S. S. Cohen, M.D. ..... Oak Terrace
K. A. Danielson, M.D. ..... Litchfield
E. K. Geer, M.D. ..... Saint Paul
G. A. Hedberg, M.D. ..... Nopeming
A. J. Henderson, M.D. ..... Kiester
R. R. Hendrickson, M.D. ..... Lake Park
E. A. Meyerding, M.D. ..... Saint Paul
K. H. Pfuetze, M.D. ..... Cannon Falls
C. L. Scofield, M.D. ..... Benson
S. A. Slater, M.D. ..... Worthington
W. H. Feldman, M.D. (ex officio) ..... Rochester

NON-SCIENTIFIC COMMITTEES

COMMITTEE ON PUBLIC POLICY

L. L. Sogge, M.D. ..... Windom
G. I. Badeaux, M.D. ..... Brainerd
L. A. Barney, M.D. ..... Duluth
J. F. DuBois, M.D. ..... Sauk Center
E. A. Eberlin, M.D. ..... Glenwood
W. A. Fansler, M.D. ..... Minneapolis
R. C. Gray, M.D. ..... Cambridge
H. C. Habein, M.D. ..... Rochester
J. M. Hayes, M.D. ..... Minneapolis
M. O. Oppegaard, M.D. ..... Crookston
W. C. Rutherford, M.D. ..... Saint Paul
H. R. Tregilgas, M.D. ..... South Saint Paul

INTERPROFESSIONAL RELATIONS COMMITTEE

F. J. Savage, M.D. ..... Saint Paul
C. C. Allen, M.D. ..... Austin
R. G. Allison, M.D. ..... Minneapolis
E. C. Bayley, M.D. ..... Lake City
J. J. Catlin, M.D. ..... Buffalo
E. E. Christensen, M.D. ..... Winona
C. O. Estrem, M.D. ..... Fergus Falls
O. O. Larsen, M.D. ..... Detroit Lakes
C. W. Mayo, M.D. ..... Rochester
W. L. Palmer, M.D. ..... Albert Lea
A. A. Passer, M.D. ..... Olivia
C. E. Proshek, M.D. ..... Minneapolis

COMMITTEE ON UNIVERSITY RELATIONS

B. J. Branton, M.D. ..... Willmar
B. S. Adams, M.D. ..... Hibbing
George Earl, M.D. ..... Saint Paul
J. M. Hayes, M.D. ..... Minneapolis
A. W. Adson, M.D. ..... Rochester

EDITING AND PUBLISHING COMMITTEE*

E. M. Hammes, M.D. (1946) ..... Saint Paul
T. G. Clement, M.D. (1944) ..... Duluth
P. F. Donohue, M.D. (1943) ..... Saint Paul
H. W. Meyerding, M.D. (1944) ..... Rochester
B. O. Mork, M.D. (Jr.) (1946) ..... Worthington
C. L. Oppegaard, M.D. (1945) ..... Crookston
T. A. Peppard, M.D. (1942) ..... Minneapolis
O. W. Rowe, M.D. (1942) ..... Duluth
Waltman Walters, M.D. (1943) ..... Rochester
H. L. Ulrich, M.D. (1945) ..... Minneapolis

COMMITTEE ON PUBLIC HEALTH EDUCATION

E. L. Tuohy, M.D., General Chairman ..... Duluth

Executive

E. L. Tuohy, M.D. ..... Duluth
R. M. Burns, M.D. ..... Saint Paul
R. M. Hewitt, M.D. ..... Rochester
F. H. Magney, M.D. ..... Duluth
Chairmen of all Scientific Committees

Radio

R. M. Burns, M.D. ..... Saint Paul
J. K. Anderson, M.D. ..... Minneapolis
M. J. Anderson, M.D. ..... Rochester
R. S. Andrews, M.D. ..... Mankato
Elizabeth C. Bagley, M.D. ..... Duluth
P. M. Gamble, M.D. ..... Albert Lea
C. N. Harris, M.D. ..... Hibbing
E. A. Heiberg, M.D. ..... Fergus Falls
R. N. Jones, M.D. ..... Saint Cloud
E. D. Risser, M.D. ..... Winona

Speakers Bureau

F. H. Magney, M.D. ..... Duluth
R. M. Burns, M.D. ..... Saint Paul
L. A. Hilger, M.D. ..... Saint Paul
P. J. Huniker, M.D. ..... Le Sueur
P. A. Lommen, M.D. ..... Austin
I. F. Norman, M.D. ..... Crookston
L. R. Prins, M.D. ..... Albert Lea
R. C. Radabaugh, M.D. ..... Hastings
C. P. Robbins, M.D. ..... Winona
T. W. Weum, M.D. ..... Minneapolis

Editorial

R. M. Hewitt, M.D. ..... Rochester
R. P. Buckley, M.D. ..... Duluth
G. W. Clifford, M.D. ..... Alexandria
L. A. Hilger, M.D. ..... Saint Paul
W. W. Spink, M.D. ..... University

*Terms expire December 31, of year indicated.

COMMITTEE ON MEDICAL ECONOMICS

George Earl, M.D. General Chairman ..... Saint Paul

Executive

George Earl, M.D. ..... Saint Paul
A. W. Adson, M.D., Vice Chairman ..... Rochester
R. D. Mussey, M.D. ..... Rochester
W. A. Coventry, M.D. ..... Duluth
W. H. Hengstler, M.D. ..... Saint Paul
F. A. Olson, M.D. ..... Minneapolis
L. L. Sogge, M.D. ..... Windom
T. H. Sweetser, M.D. ..... Minneapolis
E. L. Tuohy, M.D. ..... Duluth

Editorial

George Earl, M.D. ..... Saint Paul
W. F. Braasch, M.D. ..... Rochester
A. N. Collins, M.D. ..... Duluth
J. M. Hayes, M.D. ..... Minneapolis
F. J. Savage, M.D. ..... Saint Paul

Medical Ethics

R. D. Mussey, M.D. ..... Rochester
B. S. Adams, M.D. ..... Hibbing
H. S. Diehl, M.D. ..... University

Medical Advisory

W. H. Hengstler, M.D. ..... Saint Paul
W. L. Burnap, M.D. ..... Fergus Falls
Ivar Sivertsen, M.D. ..... Minneapolis

State Health Relations

T. H. Sweetser, M.D. ..... Minneapolis
E. S. Boleyn, M.D. ..... Stillwater
W. S. Broker, M.D. ..... Wadena
J. N. Dunn, M.D. ..... Saint Paul
C. L. Haney, M.D. ..... Duluth
W. E. Hart, M.D. ..... Monticello
C. M. Johnson, M.D. ..... Dawson
D. E. McBroom, M.D. ..... Saint Paul
J. P. McDowell, M.D. ..... Saint Cloud
J. L. McLeod, M.D. ..... Grand Rapids
S. A. Slater, M.D. ..... Worthington
C. W. Woodruff, M.D. ..... Chatfield

Low Income and Indigent Problems

W. A. Coventry, M.D. ..... Duluth
V. S. Counseller, M.D. ..... Rochester
J. A. McIntyre, M.D. ..... Owatonna
I. L. Oliver, M.D. ..... Graceville
C. L. Oppegaard, M.D. ..... Crookston
C. A. Saffert, M.D. ..... New Ulm
C. L. Sherman, M.D. ..... Luverne
L. I. Younger, M.D. ..... Winona
A. H. Zachman, M.D. ..... Melrose

Sickness Insurance

A. W. Adson, M.D. ..... Rochester
R. R. Cranmer, M.D. ..... Minneapolis
I. E. Crewe, M.D. ..... Rochester
V. P. Hauser, M.D. ..... Saint Paul
F. J. Hirschboeck, M.D. ..... Duluth
F. R. Hirshfield, M.D. ..... Minneapolis
O. W. Holcomb, M.D. ..... Saint Paul
E. W. Johnson, M.D. ..... Bemidji
G. C. MacRae, M.D. ..... Duluth
C. A. McKinlay, M.D. ..... Minneapolis
J. L. Mills, M.D. ..... Winnebago
O. I. Sohlberg, M.D. ..... Saint Paul
W. W. Will, M.D. ..... Bertha

Industrial and Contract Practice

F. A. Olson, M.D. ..... Minneapolis
A. M. Aanes, M.D. ..... Red Wing
N. H. Baker, M.D. ..... Fergus Falls
C. C. Chatterton, M.D. ..... Saint Paul
W. H. Cole, M.D. ..... Saint Paul
G. R. Dunn, M.D. ..... Minneapolis
W. N. Graves, M.D. ..... Duluth
Clarence Jacobson, M.D. ..... Chisholm
P. C. Leck M.D. ..... Austin
H. B. Macey, M.D. ..... Rochester
R. F. McGandy, M.D. ..... Minneapolis
E. N. Peterson, M.D. ..... Eveleth
C. M. Smith, M.D. ..... Duluth

MINNESOTA STATE CERTIFICATION BOARD ON PUBLIC HEALTH NURSING

E. J. Simons, M.D. ..... Swanville

MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 25 **February, 1942** **No. 2**

PRESENT STATUS OF SURGERY OF THE ACCESSORY NASAL SINUSES

CHARLES E. CONNOR, M.D.

Saint Paul, Minnesota

THE modern story of the nasal accessory sinuses begins with the profound anatomical researches of the Viennese and German schools shortly after the middle of the last century. Aided by limitless post-mortem material and a flare for research, men such as Zuckerkandl and Hajek of Vienna, Grünwald of Munich, and Killian of Baden covered the entire field so thoroughly that little has since been aded to their work. These studies, concerned solely with gross anatomy, laid the foundation for all later surgical procedure but could not be fully utilized at the time because of technical difficulties; for many years, therefore, the only operations attempted on the accessory sinuses were external, done under general anesthesia, and without any special illumination. The frontal sinus was most frequently opened, occasionally the antrum. Lack of adequate cavity illumination and hemostasis made such procedures difficult and rendered the surgery of the sinuses static for a long time.

So matters stood till the discovery of cocaine in 1885 and adrenalin in 1910; this combination produced such anesthesia and ischemia that the field of intranasal surgery seemed limitless; patients were willing to have almost anything done provided only that it left no visible scar. So was ushered in the so-called "Golden Age" of rhinology when almost anything "went," provided no scar was left.

It ultimately became evident that a restudy of the problem was indicated, not so much in the fields of anatomy or surgical technic, for these were already on a sound basis, but in the fields of physiology and pathology; accordingly much research, initiated in this country and copied abroad, has been carried on in various university centers for the past decade with most illuminating results. Our understanding of nasal function, the filtering, warming and moistening of the air, the function of smell, has been amplified by the newer knowledge of the function of the mucous blanket, of the cilia, and of epithelial and glandular tissue.

Much of our older therapy with sprays, swabs, and irrigations was revealed as not only not beneficial but definitely harmful, in that it interfered with the mucous blanket and with ciliary activity. We realize now that the delicate nasal membrane will not tolerate strong medication, that the mucous blanket is impervious to many of our favorite remedies, including the old reliable nasal oils, that any germicidal agent strong enough to be effective will work irreparable harm to the mucosa, that irrigations are bad because they wash away the protective mucus, that strong vasoconstrictors, if much used, produce a flabby, thickened membrane productive of permanent nasal obstruction. We have a clearer understanding of the vast amount of work the normal nasal mucosa can accomplish and of the necessity of preserving it intact and interfering as little as possible with its function.

The surgical treatment of sinusitis is unique in that healing of suppuration in a bony-walled cavity must be achieved, with rare exception without ablation of the cavity and with preservation of normal function and cosmetics. Abscesses in soft tissue can be incised and drained; in sinus suppuration this technic is not available and cosmetic considerations are important.

Preservation of normal function means the preservation of the normal sweeping action of the mucous blanket and cilia of the nose and acces-

Read before the Ramsey County Medical Society, Saint Paul, Minnesota, September 29, 1941.

sory sinuses, the most important single factor in the health of these structures. Obviously this means that healing must be accomplished with as little disturbance as possible of the normal mucosa

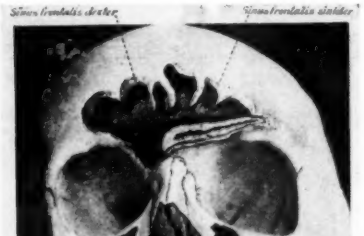


Fig. 1. Extreme variation in development of frontal and maxillary sinuses. (From J. Parsons Schaeffer.)

of these cavities; this membrane, given a chance by adequate ventilation and drainage, has enormous recuperative power. In the exceptional case, requiring removal of the lining mucosa, the cavity is relined with scar tissue which may be and often is covered with a normal ciliated columnar epithelium quite capable of carrying on the ordinary cleansing functions of cilia and mucous blanket.

Küster, half a century ago, formulated three basic principles of treatment of suppuration in a rigid-walled cavity. The cavity must be opened widely enough to permit adequate inspection, all diseased tissue must be removed, and ventilation and drainage must be secured by a permanent opening, principles just as fundamental today as when formulated. Endless variation in the anatomy and relations of the sinuses determines in part success or failure in the application of these principles and in the preservation of normal function and cosmetics, factors touched on briefly when the surgical treatment of individual sinuses is considered.

The maxillary antrum, of all the sinuses, is the most frequently involved in disease processes and providentially offers the best opportunity to apply Küster's postulates. This is so, largely because the antrum is usually a single cavity, easily accessible, and without intimate vital relationships which would make its surgical treatment hazardous. The floor of the antrum may be level with, above, or below the floor of the nose. The latter situation usually prevails and makes for some retention of secretion after the most thorough antrotomy. The infraorbital nerve may lie exposed in the roof of the antrum and be injured by the curette; the bicuspid and molar teeth and the nasolacrimal canal in the nasoantral wall may also be injured by too vigorous curettage. The great palatine artery, a branch of the third division of the internal maxillary, may be injured if antrotomy is carried too far posteriorly; bleeding from this vessel is difficult to control (Fig. 1).

Antrum suppuration was first treated by irrigation or insufflation of medicinal agents through the fistula made by extraction of a molar or bicuspid tooth. This method, fulfilling none of the fundamental requirements of treatment, was doomed to failure and soon abandoned. The next step was the removal of part or all of the canine fossa, a procedure technically easy and limited only by the location of the infraorbital nerve above, the position and length of the upper teeth, and the size of the cavity; inspection and removal of diseased tissue was easily accomplished. Ventilation and drainage was at first attempted by making an oral-antral fistula; this was neither easy to do nor always effective. A large opening under the inferior turbinate with closure of the incision over the canine fossa was much more satisfactory and fulfilled the requirement for permanent drainage; this, the Caldwell-Luc operation, has given good results for many years. The principal objection to it is the severity of the reaction and time required for healing. In recent years the tendency has been to reserve it for certain types of cases, marked polyposis, foreign body, malignancy, or cases failing to respond to the simpler operation of antrotomy, the so-called "window-resection."

Antrotomy has been widely used in recent years and has proved effective in simple uncomplicated antral disease. Reports range as high as 85 per cent of successes in properly selected cases. It is technically much easier to do, is followed by very little, if any, reaction, and healing time is shortened. It does not permit as effective application of Küster's postulates as does the Caldwell-Luc. A large antrotomy will, however, permit

fairly satisfactory inspection of the cavity with the antroscope or small mirrors, diseased tissue can be removed with reasonable certainty, using angled curettes, ventilation and drainage is just as satisfactory as with the more radical procedure. The mucosa may not return to normal for several months but a surprising amount of hyperplasia and beginning polyposis will eventually subside. It is the procedure of choice in uncomplicated cases of antrum suppuration. The one essential to success is to make the antrotomy as large as possible.

Operations on the antrum are best done under local anesthesia induced by injection of the sphenopalatine ganglion, intranasal nerve block with cocaine, and local infiltration with novocaine; they may also be done under general anesthesia but bleeding is apt to be troublesome.

The frontal sinus illustrates very well the importance of anatomical factors in treating suppuration in rigid-walled cavities and the truth that when adequate exposure, cleansing, and drainage are secured the results are good. When these essentials cannot be secured the result will probably be poor.

The frontal sinus may vary from a single small cell barely entering the frontal plate to a huge multiloculated cavity, extending from the external angle of one orbit to that of the other, and from the supraorbital margin to the hair line or even further; the nasofrontal duct may be a large straight canal emptying directly into the nose or it may be a narrow tortuous tube emptying indirectly into the nose. The floor of the sinus may contain no cells or it may be completely pneumatized back to the apex of the orbit, bringing the cavity into relation with the optic nerve and muscle cone (Fig. 2).

Problems peculiar to the frontal sinus complicate its treatment. Cosmetic considerations are important; the removal of the supraorbital margin or frontal plate produces, in large sinuses, a very evident and objectionable deformity. Certain cases would be best treated by obliteration of the cavity did not the resulting deformity forbid.

Osteomyelitis of the frontal bone, due to infection of the blood spaces in its diploë, is a serious complication possible in any procedure which attacks the frontal plate and invades these structures. Not infrequently resection of the entire frontal bone is necessary to check it.

A third problem, one of the most difficult of all, is the maintenance of ventilation and drainage through the nasofrontal duct. A canal which has been enlarged to a diameter of a centimeter may close down in the course of a few weeks till it is

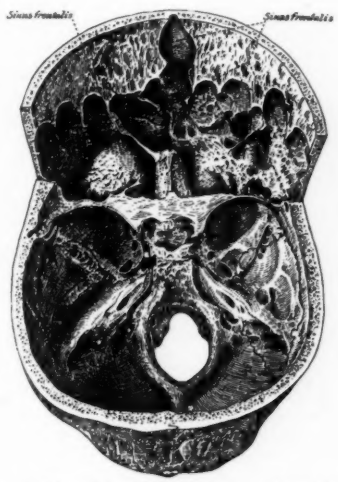


Fig. 2. Very large frontal sinus. (From J. Parsons Schaeffer.)

no longer functioning. Many methods to keep it patent have been tried, such as the use of skin and mucous membrane flaps, silver tubes, or radium. None of these has proved uniformly successful and the final answer to this problem has not been found.

The first approach to the frontal sinus was an opening in the anterior plate, either a small trephine or an extensive resection of the entire structure. When the sinus was limited to the frontal portion of the bone, inspection and removal of diseased tissue was easily accomplished. Maintenance of adequate drainage and ventilation, not so easily secured because the duct was not accessible to treatment, depended largely on its anatomy. Small sinuses could be obliterated by healing from the bottom.

A sinus limited to the frontal part of the frontal bone is not the usual situation; more frequently ethmoidal cells pneumatize the floor of the sinus to a variable degree. There may be only a few small, easily accessible cells or there may be many large cells, pneumatizing the floor of the sinus extensively over the orbit. In the latter case adequate treatment is impossible and the result of direct frontal approach unsatisfactory because of its inability to reach ethmoidal cells in the floor of the sinus and to control the nasofrontal duct.

The next development was the resection of the floor of the sinus, the approach being made through an incision in the eyebrow. This could be used for large or small sinuses, with or without extensive ethmoidal development, and rendered the ethmoidal cells and nasofrontal duct much more accessible to treatment. As originally devised, the technic called for a bridge of bone above the supraorbital margin to maintain normal contour, especially in large sinuses.

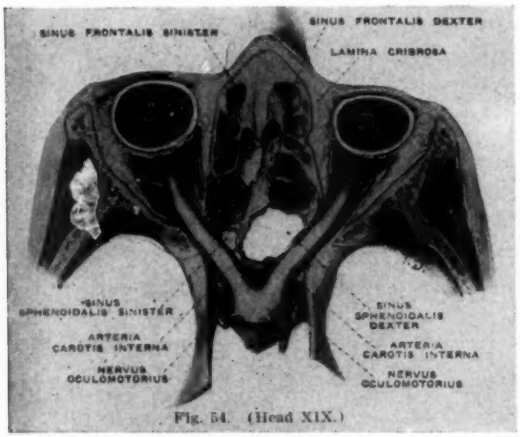


Fig. 3. Relation of optic nerve to accessory sinuses. (From J. Parsons Schaeffer.)

This operation was hailed as the final answer to suppurative disease of the frontal sinus. But difficulties soon appeared. The bridge was technically difficult to make and retention of secretion often occurred behind it, causing recurrence of symptoms. Ethmoidal cells often proved difficult of access and closure of the nasofrontal duct often marred an otherwise satisfactory result. Osteomyelitis of the frontal bone continued to occur.

Occasionally, in small sinuses, the operation could be performed without making the bridge. This simplified the procedure, allowed satisfactory treatment of both frontal and ethmoidal portions, and was not cosmetically objectionable.

The present trend in the surgical treatment of the frontal sinus is to approach it through resection of the thin portion of the floor, avoiding any trauma to the frontal plate with its attendant dangers of osteomyelitis and cosmetic defects. Such an approach is technically easy, permits satisfactory inspection, cleansing, ventilation and drainage, and secures as adequate treatment of the ethmoidal cells and nasofrontal duct as any technic we possess. The removal of the frontal plate is reserved for cases in which it is diseased or in which the posterior wall of the sinus must be inspected, e.g., suspected intracranial complication, fracture, malignancy, or those which have failed to respond to previous surgical treatment.

Acute suppurative frontal sinusitis rarely requires surgical treatment. When indicated, usually in cases of acute retention with severe pain or orbital involvement, approach should be made through the floor of the sinus, making an opening large enough to secure drainage from both frontal and ethmoidal portions. General anesthesia is desirable in order to avoid infiltrating an infected field. In such situations drainage is the only consideration, not accurate exenteration of all cells. Surgical procedures on the frontal plate are to be avoided in the presence of acute infection on account of the danger of osteomyelitis. Only definite indications of intracranial complication, such as meningitis or brain abscess, would warrant such measures. Any intranasal operation, such as turbinate resection or ethmoidal exenteration, is strictly taboo in the presence of acute infection.

Such operations, however, have a definite place in the treatment of chronic suppuration of the frontal sinus. They do not, of course, permit the adequate application of Küster's postulates. Inspection of the sinus and removal of diseased tissue from it is not possible; the only thing that can be secured is better ventilation and drainage. Fortunately, these measures control most of the cases of chronic suppuration in the frontal sinus; if they fail, recourse must be had to the external approach above described.

Acute infection calls for general anesthesia in operations on the frontal sinus. In chronic infection, the type usually demanding operation, local anesthesia is the choice because the hemostasis and enlarged field due to shrinking of vascular tissue (turbinates and membrane) define the landmarks and so permit more accurate and safer work. Intranasal nerve block with cocaine, superficial infiltration of soft tissues and deep orbital injection with novocaine produce most satisfactory anesthesia.

The ethmoidal sinus offers more difficulty in the application of the fundamental principles of treatment than does any other, due largely to its

peculiar honeycomb structure and endless and bizarre variation in development. The cells themselves are not directly visible by any method of examination; all that can be seen directly are the regions in the nose into which the various groups open, where their ostia may occasionally be seen with the nasopharyngoscope. The cells may invade the roof of the orbit, overlying that cavity, underlying the anterior fossa, and causing symptoms identical with those of a frontal sinus infection. They may invade the posterior portion of the antrum, giving rise to a so-called double antrum, or wander out into the middle turbinate; they may invade the body of the sphenoid bone, lying above or at the side of the sphenoidal sinus and so acquiring relationship with the optic nerves and commissure. They may lie behind, above, or in front of the pterygomaxillary fossa and its contained sphenopalatine ganglion, so that inflammatory reaction within these cells may cause referred pain anywhere in the field of the fifth nerve; they may be in direct contact with vital structures such as the cribriform plate. The use of x-ray and contrast media occasionally serves to warn us of unusual variations and often gives us a clue as to the best method of surgical attack.

No serious efforts were made to approach the ethmoid surgically as long as general anesthesia alone was available because the free bleeding so induced obscured all landmarks and made any such attempt, either intranasal or external, dangerous. And so it remains today. This one fact explains the universal practice of doing ethmoidal operations, either by intranasal or external route, under local anesthesia; only so can a bloodless field and clear delimitation of landmarks be secured. These, together with brilliant illumination, are the *sine qua non* of ethmoid surgery. True, one occasionally enters the ethmoid using general anesthesia, usually in cases of acute infection with retention and orbital involvement, but accurate exenteration is not attempted, merely drainage. Mosher, professor emeritus of rhinology at Harvard, author, some thirty years ago, of much brilliant original work on the ethmoid, has remarked that ethmoidal surgery worthy of the name always has been dangerous and always will be dangerous. A little reflection on the possible relations of this sinus makes the statement self-explanatory.

Ethmoidal surgery under local anesthesia dates from the discovery of cocaine. The approach may be either intranasal, or external through the eyebrow and about the inner canthus. If the cells, as seen in x-ray, appear accessible by the intranasal route, this method may be

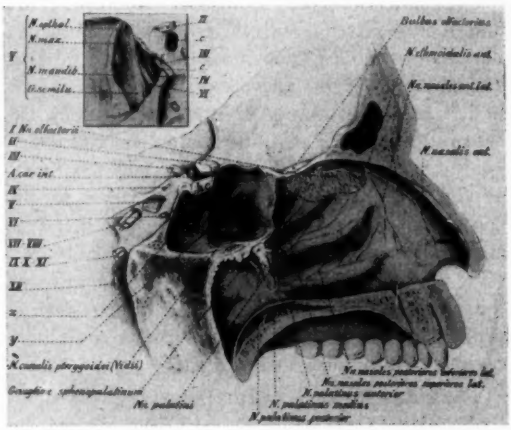


Fig. 4. Some relations of the sphenoidal sinuses. (From J. Parsons Schaeffer.)

tried. Anesthesia by intranasal nerve-block is very satisfactory; there is no shock or serious reaction associated with the procedure and healing is comparatively rapid. If due regard is had for the vital relationships above described, no accidents should occur. The middle turbinate may be removed after the operation or left intact; many prefer the latter, feeling that sacrifice of vascular tissue is to be avoided if at all possible.

If x-ray reveals cells inaccessible by intranasal approach, the external route about the inner canthus may be used. This also is done under local anesthesia, secured by superficial soft tissue and deep orbital injection of novocaine, and intranasal nerve-block. Such anesthesia is quite satisfactory; the ischemia so produced may be increased, if necessary, by ligation of the ethmoidal arteries. The field should be dry with maximum visibility and accessibility, permitting the examination and exenteration of the sinus cell by cell. Such technic gives the best chance of reaching difficult cells, is safer than the intranasal approach, and results in a scarcely visible scar.

The results of ethmoidal surgery depend on the thoroughness with which the cells are exenterated and this depends, in part, on their accessibility. If they are so situated that Küster's postulates may be attained by one technic or another, the

results will be good, and definite improvement in nasal occlusion, discharge, and headache will be secured. If the cells are reached only with great difficulty and exenteration is incomplete, results will be disappointing.

The sphenoid sinus, lying immediately behind and in close relation with the ethmoidal sinus, may be considered a prolongation backward of that sinus and, from the surgical point of view, a part of it. What has been said, in connection with the ethmoid, about the effect of anatomical characteristics and relationships upon surgical treatment applies with equal or even more force to the sphenoid Its variations may be just as extreme and bizarre, its relationships just as vital, its surgical approach just as difficult as in the case of the ethmoid. Indeed, some of its recesses and prolongations are completely invisible and inaccessible by any means of approach.

The sinus varies greatly. It may be one small shallow cell, lying entirely on its own side of the sagittal plane, or it may be a huge, multiloculated cavity crossing the midline and giving symptoms on the opposite side of the head. It may enter the perpendicular and orbital plates of the palate bone, approaching the optic foramen and nerve. It may invade the greater or lesser wings of the sphenoid bone, assuming close relations to the superior orbital fissure and its contained structures, especially the superior and inferior divisions of the oculomotor nerve, the trochlear nerve, the lacrimal, frontal, and nasociliary divisions of the ophthalmic nerve, and the abducens. It may approach the foramen rotundum and the contained maxillary nerve or the foramen ovale and mandibular nerve. The sinus is in apposition posteriorly, in at least 50 per cent of the cases, with the optic nerves and commissure; if it is extensively developed posteriorly these structures may lie in the roof of one or both sphenoids. The clinoid processes may be pneumatized with the close approximation of the sphenoidal cavity to the contents of the sella. Dehiscences in the lateral wall of the sphenoid may expose the cavernous sinus and its contents directly to the sphenoidal mucosa and demand great caution in any attempt to remove diseased tissue from the cavity.

The sphenoid, lying deep in the nose, is not easily exposed to view, and part or all of the middle turbinate must be sacrificed to gain access to it. Treatment of suppuration within it involves taking down the anterior wall, partly membrane and partly bone, or, in stubborn cases, the resection of the bony floor, a structure which may be quite thick and difficult of removal. The principle difficulties in treatment are caused by inaccessible ramifications, such as the pterygoid recess, and by the marked tendency to close of any operative opening in the anterior wall. These openings must be made as large as possible, as in antrotomy, in order to be permanent Extreme care must be used in removing diseased tissue from its interior. It is evident that, while the problem of cosmetics does not here demand consideration, difficulties, at times almost insurmountable, are encountered in obtaining adequate inspection, in removal of diseased tissue, and in maintaining adequate drainage. When a large enough opening is secured in the anterior wall of the cavity, disease processes within usually subside quite satisfactorily. Limitations upon the operative field and procedures, so characteristic of sinus surgery, are well illustrated.

The discovery, in recent years, of nasal allergy has thrown much light on diseases of the accessory sinuses and has explained many of our failures in the past. It is estimated that about 25 per cent of the patients in ordinary rhinologic practice have in them some element of allergy, a fact we are just beginning to appreciate.

For years nasal allergy paraded under a long list of pseudonyms, hyperesthetic rhinitis, spasmodic rhinorrhea, rhinitis nervosa. We recognize them today as allergic rhinitis. One of the most frequent and baffling types of case in years gone by has been that of nasal polyposis, constantly recurring despite repeated operation. Today we realize that its cure depends, not on surgery, but on the discovery of the offending allergens. True, polypi may result from nasal infection, but such polypi are much more easily controlled by operation and have much less tendency to recur when the infection has been eradicated.

Allergy, of course, does not explain all nasal disease. Acute and chronic infection still take heavy toll of the accessory sinuses and are still amenable, in most cases, to surgical treatment. But we now realize that an uncontrolled allergy will probably vitiate surgical treatment of the sinuses, treatment which should not be undertaken till the allergic factors have been eradicated so far as possible. Naturally, one would not hesitate to initiate surgical treatment in the allergic pa-

tient, in cases of acute infection with retention, orbital abscess, or osteomyelitis. Minor procedures, such as removal of obstructing polypi or resection of deflected obstructing septæ, may also be properly done with good result in allergic cases. Our knowledge of allergy has greatly clarified surgical indications but it has not rendered sinus surgery obsolete.

I have attempted to present very briefly some of the aspects of sinus surgery which are peculiar to it and which explain, in part, some of the failures; I have pointed out the difficulties of satisfying the fundamental requirements of treatment of supppuration in rigid-walled cavities, e.g., adequate inspection, removal of diseased tissue, and establishment of permanent drainage; I have mentioned the bearing which anatomical variations have on the problem, the proximity of vital structures, the limited field, the difficulties of exposure, and the necessity of frequently solving these problems while paying strict attention to cosmetic considerations.

I believe that the work of the past decade, particularly in physiology, is placing sinus surgery on surer and higher ground and that expectation of further advance is not unreasonable. As we assimilate into the experience of the past some of our newer knowledge of physiology, as the rôle of nasal allergy becomes clearer, as some of the newer surgical technics come into more general use, it should be possible to formulate clearer and more definite operative indications, and to use technical procedures promising a degree of success justifying the measure advocated. This is the hope and expectation of everyone interested in this field.

MINNESOTA'S EXPERIENCE WITH HUMAN ENCEPHALITIS CAUSED BY THE EQUINE TYPE OF VIRUS IN 1938

C. M. EKLUND, M.D., and ALEX BLUMSTEIN, M.D.
Minneapolis, Minnesota

EPIZOOTICS of equine encephalomyelitis have been observed for over seventy years but an etiologic agent was not definitely established until Meyer, Haring and Howitt[24] isolated a filterable virus during a California epizootic in 1930. In 1933, TenBroeck and Merrill,[31] and Giltner and Shahan[13] isolated a somewhat similar virus during an epizootic in four eastern states. The virus differed immunologically from the viruses which had been isolated in the western areas and the terms eastern and western strains of equine encephalomyelitis virus were introduced. The eastern strain produced a much more fatal type of disease in horses. It has been a general belief that the eastern strain is limited to the region east of the Appalachian Mountains and the western strain to the regions west of these mountains but recently the eastern strain was isolated from the brain of a horse in a Texas epizootic.[27]

The possibility of human disease being caused by the equine type of virus was first suggested by Meyer[23] in 1932 when he presented three cases of human encephalitis with a history of close association with sick horses prior to the onset of encephalitis. The first laboratory evidence supporting this suggestion was obtained in connection with a small epidemic of encephalitis occurring in the late summer of 1937 in an area of Minnesota where equine encephalomyelitis was prevalent.[7] Six cases were reported, two had a fatal outcome, autopsy was done in one case and microscopic evidence of encephalitis was found. Blood was obtained from three of the survivors in January, 1938, and neutralization tests were run by Dr. Carl TenBroeck of the Rockefeller Institute. The serum of the patient most severely ill showed neutralization of the western equine strain. During the summer of 1938 epidemics occurred in various parts of the country and the etiology of the human cases was definitely established by the isolation of the eastern and western strains of virus. In August, 1938, cases of an unsually fatal type of encephalitis appeared in Massachusetts. The first report of the isolation of an equine virus from a human case was that of Fothergill, Dingle, Farber, and Connerly[9] who isolated the eastern strain of virus from the brain of a child dying in this outbreak. Webster

From the Minnesota Department of Health, Division of Preventable Diseases and the Division of Mental and Nervous Diseases, University of Minnesota Medical School. Read before the Minnesota Society of Neurology and Psychiatry, Sept. 9, 1941.

and Wright[35] confirmed the isolation of virus from this case and succeeded in isolating virus from four additional cases. At this time cases were also occurring in California and from the brain of one of these Howitt[19] isolated the western strain of virus. Later she reported the isolation of the western strain of virus from the blood serum of another case. In addition she has reported thirty-two cases (chiefly 1937 and 1938 cases) with sera neutralizing the western strain of virus.[20] Breslich, Rowe, and Lehman[2] in a clinical and pathological report of twenty-three cases seen in the North Dakota epidemic during the summer of 1938, state that neutralization tests were run by Dr. Charles Armstrong with six sera; four neutralized the western strain of virus and one the St. Louis virus. Gareau[12] reported a clinical study of twenty-nine cases occurring in southern Saskatchewan. Fulton[11] demonstrated neutralization of the western virus by the serum of one of these cases. In 1939 he received a brain specimen from a patient dying in this same area; from this specimen he isolated the western strain of virus. In Minnesota during 1938 the sera of fourteen cases neutralized the western virus.

From 1938 to 1940 few cases appear to have been recognized. Recently, two studies of 1940 outbreaks of acute encephalitis have been reported which emphasize the close association of the disease caused by the western strain of equine virus and the St. Louis virus. Phillips, Cox, and Fountain[25] report the study of an outbreak of encephalitis occurring in northern Colorado during the summer and fall of 1940 among humans and horses. Neutralization tests were run with sera from fourteen human cases; the sera of seven showed protection against the St. Louis virus; one of the seven showed equal protection against the western strain of virus. Of sera from seven horses that had encephalomyelitis, all showed protection against the St. Louis virus and five also against the western equine virus. In an accompanying paper Cox, Phillips and Kirkpatrick[4] showed that horses were susceptible to intracerebral inoculation of the St. Louis virus and that recovery from infection with the western strain of virus did not protect against infection with the St. Louis virus.

Hammon[15] reports a study of an epidemic in the Yakima Valley of Washington during the summer of 1940. Howitt ran neutralization tests with sera from fifty patients; fourteen (28 per cent) neutralized the western strain of virus only, eight (16 per cent) neutralized the St. Louis virus only, and twenty-eight (56 per cent) neutralized both viruses. In a control group consisting of sera from seventy-five people not having encephalitis three (4 per cent) neutralized the western strain of virus, nineteen (25.4 per cent) neutralized the St. Louis virus, two (2.7 per cent) neutralized both viruses and fifty-one (67.9 per cent) did not neutralize either virus. Hammon believes that the clinical, epidemiological and laboratory evidence points to the presence of both viruses during the epidemic and that some of the patients probably had mixed infections.

Howitt had previously reported similar results in her study of California cases. At that time there was much migrant labor from areas where the St. Louis type of encephalitis had been prevalent and the St. Louis antibodies present were thought to represent previous exposure.

The epidemiology of encephalitis due to the equine type of virus is not entirely clear at present. Contact infection does not occur among laboratory animals nor did it occur in Record and Vawters'[34] experiment where sick horses were placed in a corral with well horses. No cases are reported of attendants of patients becoming sick. There are two reports of infections among laboratory workers and statements that others have occurred.[10, 18] In one case the route of infection is not definitely known; in another the person was heavily sprayed with a highly concentrated virus preparation. The disappearance of the disease in horses with the onset of frost early suggested the possibility of insect vectors. Ten varieties of aëdes mosquitoes have been known to be able to transmit the disease under experimental conditions; eight the western strain and seven the eastern strain. Five varieties able to transmit the western strain are found in Minnesota.[6, 28] No aëdes mosquitoes have been found infected under natural conditions but recently Hammon[17] has reported the isolation of the western virus from a lot of Culex tarsalis mosquitoes caught in the state of Washington. To date, culex and anopheline mosquitoes have not been shown able to transmit the disease experimentally. The tick, Dermacenter andersoni, is able to transmit the western strain of virus under laboratory conditions but no infected tick has been found in nature.[29] This is not a Minnesota tick. Recently it has

been reported that one of the conenose bugs, Triatoma sanguisuga Le Conte has been found infected with the western strain of virus under natural conditions in Kansas and is able to transmit infection to the guinea pig in the laboratory.[22] This bug has not been found in this area. The reservoir of infection is at present not known. TenBroeck has suggested that birds would be a more likely reservoir than the horse. The eastern strain of virus has been isolated from pheasants and pigeons,[1,8,32,33] and the western strain from a prairie chicken.[3] TenBroeck[30] showed that blood sera of a turkey and some chickens from an area where the disease occurred in horses had protective power against the eastern strain. Howitt[21] demonstrated antibodies against the western virus in chicken sera and a quail serum but she also stated that she had tested blood of chickens raised under such conditions that contact with the virus was not possible and demonstrated neutralization of the western virus so that protection by chicken sera may not always indicate previous infection.

The host susceptibility of both strains of virus is very wide. Some of the animals in which the western strain of virus has produced disease by various routes of inoculation are: the guinea pig, rat, mouse, rabbit, monkey, pigeon, calf, goat, duck, gopher (Citellus richardsonii), vole, burrowing owl, guinea fowl, gamble and English sparrow, quail, junco, thrasher, wild rats (cotton, kangaroo and wood rat), various species of wild mice, puppies, young turkeys and chicks.[21] Most of these and others resistant to inoculation with the western virus have been shown susceptible to inoculation with the eastern type. The western strain of virus has been isolated from the brain of a deer.[3] Some evidence of natural infection of the gopher (Citellus richardsonii) with the western virus has been presented by Gwatkin.[14] In addition to looking for virus, Hammon[6] has examined blood sera from a wide variety of animals and found antibodies against the western virus in the serum of the cow, dog, goat, horse, pig, sheep, field mouse, white-footed mouse, weasel, chicken, domestic mallard duck, Peking duck, domestic goose, great horned owl, domestic pigeon, turkey, red shafted flicker, sparrow hawk, killdeer, ring-necked pheasant, California quail and robin; 32.4 per cent of seventy-four domestic, and 5.1 per cent of seventy-eight wild animals had protection. He suggested barnyards and fowl runs as possible sources of infection. While vector and reservoir have not been established under natural conditions the epidemiology of the disease is most readily explained by the assumption of an insect vector (or vectors) and a host (or hosts). At present it is not clear how the virus gets through the winter months, since a chronic carrier state has not been demonstrated in any animal. We have no evidence of infection in any native tick in this area that might carry infection through the winter. It has been suggested that migratory birds might be a reservoir of infection. As yet it has not been possible to fit in the distribution of the disease in man with any known migratory path.

Minnesota's Experience with the Disease (1938)

In 1938 an extensive epizootic of equine encephalomyelitis again occurred in Minnesota; 23,686 horses were reported as affected. During that year forty-seven human cases of encephalitis were reported to the Minnesota Department of Health. The onset in thirty-six of these cases was between August 13 and September 20, a period during which infection with the equine virus might be expected. Sera were tested for neutralization of the western virus in twenty-one instances;* fourteen sera neutralized the western strain of virus. Two sera neutralized the St. Louis virus and one additional serum showed moderate protection after two years' standing in the ice box. Only the sera showing no neutralization of the western virus were run with the St. Louis virus so we have no data comparable to Hammon's. The distribution of the cases with neutralization of the western virus was predominately rural; ten lived on farms, three in small towns, and one in St. Paul. Six cases occurred in a rural area with a radius of about ten miles. Two cases had close contact with sick horses. In the others there is no history of any contact with sick horses. No individual had contact with any other case. There were eleven males and three females. The ages varied from one month to sixty-six years, two in the first decade, one in the second, four in the fourth, one in the fifth, three in the sixth, and three in the seventh.

*Most of these sera were run by the following: Dr. Carl TenBroeck of the Princeton Branch of the Rockefeller Institute, Webster and Wright of the Rockefeller Institute, or Dr. Charles Armstrong of the National Institute of Health. A few sera were run in the laboratories of the Minnesota Department of Health.

Clinical picture: In the typical case, onset was rather sudden with headache and fever. In a day or two drowsiness appeared and in the mild case no further symptoms appeared. In the more severe case drowsiness progressed to stupor, at times alternating with marked restlessness. The sensorium became cloudy and there was disorientation in all fields. In about a week the temperature usually began to drop and a few days later the patient's condition began to improve. On physical examination stiff neck and less frequently tremors were practically the only physical findings.

The symptoms at onset in thirteen positive cases were: headache 10; nausea 3; chills 3; vomiting 2; malaise 4; dizziness 2; drowsiness 2; stiff neck 1.

During the course of the illness, eight of the patients were either drowsy or lethargic; seven complained of headache; six were said to be irrational. Diplopia and photophobia were each complained of by two patients. The acute phase of the illness lasted two to three weeks. The majority of patients had a complete amnesia for the period of their severe illness. The period of acute illness was followed in most cases by severe weakness, (ten of thirteen cases).

The physical findings were: fever 13 (103°-105° maximum); stiff neck 7 (moderate degree); tremor 4 (facial and hands); Babinski 1 (unilateral).

Examination of the spinal fluid showed an increase of cells in every case. The counts ranged between thirty and 400 cells. A differential count was done in nine cases: in seven there was a predominance of lymphocytes, in two a predominance of polymorphonuclear cells. Pressure determinations, quantitative protein and sugar studies were not done frequently enough to justify special comment.

The fourteenth positive case has been reported in detail by Dr. R. V. Platou.[28] A one-month-old child had a ten-day febrile illness in August and about one month later was noted to be developing symptoms suggestive of Little's disease.

The history of a well-studied case follows.

Case History

A.M., a man, aged fifty-six, onset afternoon August 17, 1938, with nausea, dizziness and drowsiness. The dizziness and nausea persisted the next day. The patient stayed in bed, was restless, tossed from side to side; that evening light stupor occurred, temperature slightly elevated. On August 19 temperature 104°. At times patient was restless and delirious, at other times he was stuporous and could not be roused. He did not recognize his family. August 20 stupor alternated with restlessness; temperature 104°. The periods of stupor and restlessness continued until admission to the University Hospital August 23. Just before admission patient appeared somewhat better and recognized his family.

Physical examination: Upon admission August 23 the patient was difficult to arouse; T. 101 (R), P. 100, R. 24, B.P. 200/110. There were fine scattered rales over the lung bases. Heart was enlarged. No positive neurological findings. August 24, spinal puncture; pressure 12 mm. mercury—Queckenstedt normal. There were 81 cells, of which 61 were polymorphonuclears and 20 mononuclears; protein 114 mg., sugar 104 mg. On August 25, spinal puncture, 99 cells, 70 pmn., 29 mono. On September 7 cell count 0, protein 40.1 mg. w.b.c.: August 24, 14,080; August 6, 10,000. Course in hospital: Temperature dropped from 101 to 100° on August 26; stayed at this level until August 31 when dropped to nearly normal. Was restless and semiconscious first 2 days in hospital, then gradually less restless and slept better; incontinent first six days in hospital. Discharged August 15 with weakness as only complaint. Contacts: patient treated a sick horse from August 1 to August 11. Was not off farm for two weeks prior to the onset of his illness. Before that, his only trips were to a neighboring town for supplies. He had no contact with any sick person.

Symptoms Reported by Others

Howitt[20] has listed the main symptoms in thirty-one California cases where the sera neutralized the western strain of virus or where this virus was isolated. In order of frequency the chief symptoms were headache, drowsiness, fever, vomiting, stiff neck and lethargy. Other symptoms such as muscle spasms, convulsions, irritability, rigidity of extremities and dizziness occurred less frequently. Gareau[12] in his clinical study listed high temperature, headache, malaise, pains and aches, and mental sluggishness as the main symptoms. He especially stressed headache. Nausea, vomiting and anorexia were also common. Neck rigidity and Kernig's sign were usually demonstrable. Nystagmus, difficulty in swallowing and speaking, convulsions, muscular twitchings and tremors occasionally occurred.

Breslich, Rowe and Lehman[2] in their North Dakota study mention severe headache, fever, general muscular pains, backache, nausea and vomiting, dizziness and drowsiness. More severe cases progressed to delirium and coma. Stiff neck was the most common physical finding. Coarse intention tremors of the face and loss of abdominal reflexes were quite common. The Kernig sign was present less frequently.

The mortality is difficult to determine. In Minnesota diagnosis was not established by laboratory methods in any fatal case. Of the thirty-six cases occurring between August 13 and September 20, five died. In Minnesota in 1937, of six quite definite clinical cases in one locality, two died. Gareau reports four deaths among twenty-nine clinical cases. Howitt, two of thirty-one cases, and the North Dakota investigators five of twenty-three cases.

Sequelæ appear to be rather uncommon. In Minnesota in only one reported case has it been recognized—the infant who developed the clinical picture of Little's disease. Davis has reported sequelæ in two children in California.[5] Both had marked mental retardation and in addition one had some paralysis and the other blindness and deafness.

Gareau at the end of two years knew of five cases: three children with various types of paralysis and still showing improvement; two adults, one with disseminated sclerosis, the other had mental confusion and dizziness.

The patients in this study with sera neutralizing the Saint Louis virus did not differ clinically from those with sera neutralizing the western strain of virus. Of the Saint Louis type, two cases occurred in a rural area and one in Saint Paul.

Summary

Fourteen cases of encephalitis with neutralization of the western strain of equine encephalomyelitis virus are reported. The epidemiologic and clinical features are briefly described.

Bibliography

1. Beaudette, F. R., Black, J. J., and Hudson, C. B.: Another case of equine encephalomyelitis in New Jersey pheasants. Jour. Am. Vet. Med. Assn., 98:449-450, 1941.
2. Breslich, P. J., Rowe, P. H., and Lehman, W. L.: Epidemic encephalitis in North Dakota. Jour. A.M.A., 113:-1722-1724, 1939.
3. Cox, H. R., Jellison, W. L., and Hughes, L. E.: Isolation of western equine encephalomyelitis virus from a naturally infected prairie chicken. Pub. Health Rep., 56:1905-1906, 1941.
4. Cox, H. R., Philip, C. B., and Kilpatrick, J. W.: Susceptibility of horses to St. Louis encephalitis virus. Pub. Health Rep., 56:1391-92, 1941.
5. Davis, J. H.: Equine encephalomyelitis (western type) in children; report of cases with residual atrophy of brain. Jour. Pediat., 16:591-595, 1940.
6. Davis, W. A.: Study of birds and mosquitoes as hosts for virus of eastern equine encephalomyelitis. Am. Jour. Hyg., Sect. C, 32:45-59, 1940.
7. Eklund, C. M., and Blumstein, A.: The relation of human encephalitis to encephalomyelitis in horses. Jour. A.M.A., 111:1734-1735, 1938.
8. Fothergill, L. T., and Dingle, J. H.: Fatal disease of pigeons caused by virus of eastern variety of equine encephalomyelitis. Science, 88:549-550, 1938.
9. Fothergill, L. D., Dingle, J. H., Farber, S., and Connerley, M. L.: Human encephalitis caused by virus of eastern variety of equine encephalomyelitis. New Eng. Jour. Med., 219:411, 1938.
10. Fothergill, L. D., Holden M., and Wyckoff, R. W. G.: Western equine encephalomyelitis in a laboratory worker. Jour. A.M.A., 113:206-207, 1939.
11. Fulton, J. S.: Relation of equine encephalomyelitis to epidemic of human encephalitis in Saskatchewan in 1938. Canad. Pub. Health Jour., 32:6-12, 1941.
12. Gareau, U.: Clinical aspects of an epidemic of human encephalomyelitis in Saskatchewan in 1938. Canad. Pub. Health Jour., 32:1-5, 1941.
13. Giltner, L. T., and Shahan, M. S.: The 1933 outbreak of equine encephalomyelitis in the eastern states. North Am. Vet., 14:25, (Nov.) 1933.
14. Gwatkin, R., and Moore, T.: Indication of presence of virus of equine encephalomyelitis in brain of ground squirrel. Canad. Jour. Comp. Med., 4:78-82, 1940.
15. Hammon, W. M.: Encephalitis in the Yakima valley; mixed St. Louis and western equine types. Jour. A.M.A., 117:161-167, 1941.
16. Hammon, W. M., Gray, J. A., Jr., Evans, F. C., Izumi, E. M., and Lundy, H. W.: Western equine and St. Louis encephalitis antibodies in the sera of mammals and birds from an endemic area. Science, 94:305-307, 1941.
17. Hammon, W. M., Reeves, W. C., Brookman, Bernard, Izumi, E. M., and Gjullin, C. M.: Isolation of viruses of western equine and St. Louis encephalitis from Culex tarsalis mosquitoes. Science, 94:328-330, 1941.
18. Helwig, F. C.: Western equine encephalomyelitis following accidental inoculation with chick embryo virus; report of a fatal human case. Jour. A.M.A., 115:291-292, 1940.
19. Howitt, B. F.: Recovery of virus of equine encephalomyelitis from brain of a child. Science, 88:455-456, 1938.
20. Howitt, B. F.: Viruses of equine and of St. Louis encephalitis in relationship to human infection in California, 1937-38. Am. Jour. Pub. Health, 29:1083-1097, 1939.
21. Howitt, B. F.: Comparative susceptibility of wild and domestic birds and animals to western virus of equine encephalomyelitis (Br. strain) in California. Jour. Inf. Dis., 67:177-187, 1940.
22. Kitselman, C. H., and Grundmann, A. W.: Equine encephalomyelitis virus isolated from naturally infected Triatoma sanguisuga LeConte. Kansas Station Tech. Bul., 50, 1940.
23. Meyer, K. F.: A summary of recent studies on equine encephalomyelitis. Ann. Int. Med., 6:645-654, 1932; also Equine encephalomyelitis. North Am. Vet., 14:30, (June) 1933.
24. Meyer, K. F., Haring, C. M., and Howitt, B.: The etiology of epizootic encephalomyelitis of horses in the San Joaquin Valley, 1930. Science, 74:227, (Aug. 28) 1931.
25. Philip, C. B., Cox, H. R., and Fountain, J. H.: Protective antibodies against St. Louis encephalitis virus in the serum of horses and man. Pub. Health Rep., 56:1388-1391, 1941.
26. Platou, R. V.: Equine encephalomyelitis in infancy. Am. Jour. Dis. Child., 60:1155-1169, 1940.
27. Randall, Raymond and Eichhorn, E. A.: Westward spread of eastern type equine encephalomyelitis virus. Science, 93:595, 1941.
28. Riley, W. A.: Encephalitis in Minnesota. Minn. Med., 26:666, 1941.
29. Syverton, J. T., and Berry G. P.: An arthropod vector for equine encephalomyelitis, western strain. Science, 84:186-187, 1936.
30. TenBroeck, Carl: Transmission of equine encephalomyelitis. Proc. Third Int. Cong. for Microbiology, p. 300-01, 1939.
31. TenBroeck, Carl, and Merrill, M. H.: Serological difference between eastern and western equine encephalomyelitis virus. Proc. Soc. Exp. Biol. and Med., 31:217-220, 1933.
32. Tyzzer, E. E., Sellards, A. W., and Bennett, B. L.: Occurrence in nature of "equine encephalomyelitis" in ring-necked pheasant. Science, 88:505-506, 1938.
33. Van Roekel, H., and Clarke, M. K.: Equine encephalomyelitis virus (eastern type) isolated from ring-necked pheasant. Jour. Am. Vet. Med. Assn., 94:466-468, 1939.
34. Vawter, L. R., and Record, E.: Respiratory infection in equine encephalomyelitis. Science, 78:41-42, 1933.
35. Webster, L. T., and Wright, F. H.: Recovery of eastern equine encephalomyelitis virus from brain tissue of human cases of encephalitis in Massachusetts. Science, 88:305-306, 1938.

METASTATIC BRAIN ABSCESSES

GEORGE N. RUHBERG, M.D.

Assistant Clinical Professor of Nervous and Mental Diseases
University of Minnesota Medical School
Saint Paul, Minnesota

ABSCESSES of the brain arising from a distant and seemingly unrelated focus often and unexpectedly presents a problem, difficult from a diagnostic aspect, deadly in its outcome and incomprehensible in its genesis.

Purulent disease of the bronchi and pulmonary tissue were recognized by Virchow, Gull, and others of that generation, as the chief causes of metastatic cerebral abscesses. This relationship still remains a curious phenomenon. In pyemia the brain seems more resistant to infection and formation of abscesses than other organs. This is well illustrated in their relative infrequency in ulcerative endocarditis. Shorstein thought that while possibly the brain had greater resistance to infective emboli in acute infections, its resistance in chronic cases was relatively weaker because of feebler production of antibodies compared with other organs. Pilot concluded the putrid abscesses usually found were due to a mixed infection of anaerobic organisms and streptococci and for their production it seemed necessary to have intermediate advanced lesions due to the same organism. These bacteria, particularly, develop in large numbers in the lung and have access to large vessels where thrombi are formed and carried by the blood stream to the brain. He thought the brain to be a good culture medium for these bacteria. Eagleton believed these brain abscesses were of venous origin and this explained the greater incidence of pulmonary antecedents over arterial-borne infections in ulcerative endocarditis. He also has shown that metastatic abscesses from ear and nasal sources do occur. Arnold found, experimentally, that the venous circulation from the head toward the heart is reversed when a positive intrathoracic pressure is encountered. Gardner surmised that coughing or straining, by causing this pressure, induced venous engorgement and arterial ischemia, thereby rendering the lodgment of an embolus easier and temporarily lowering the normal resistance of the cerebral tissue. It is significant that this close, or possibly closer, relationship between lung and brain is present in carcinoma of the lung. It seems paradoxical that metastatic brain abscesses are rare in pulmonary tuberculosis. In short, the problem still remains unsolved.

Of the diseases of the lung associated with brain abscesses bronchiectasis is the main antecedent. In sixty-three cases of bronchiectasis, cited by Shorstein, the cause of death was bronchopneumonia in seventeen and brain abscess in thirteen. Apart from bronchopneumonia, brain abscess was more than twice as frequent as any other cause of death. Empyema was a far removed second to bronchiectasis. It occurred in cases where chest operations had or had not been performed. It seems clear that these operations bore no relationship to brain abscess formation. Gangrene of the lung was frequently cited. Nähter found purulent foci in the brain in eight out of 100 cases of pulmonary gangrene. This high percentage was not borne out in English and American series. Pulmonary tuberculosis, as already mentioned, was rare. Shorstein collected three cases, Claytor five and Parker one.

It has been pointed out that the division of bronchiectasis, lung abscess and empyema as separate antecedents is artificial. One may be instrumental in causing the other. All three are commonly present simultaneously, and there is always such a close relationship that it is reasonable to group them together. Other conditions mentioned are acute pneumonia, emphysema and bronchitis, the latter two being thought to be a coincidence. Claytor and Shorstein series are shown in Table I.

The cases here reported are from the services at the Ancker Hospital from the period 1924 to 1940. For comparative reasons all cerebral abscesses are listed. Their original source is shown in Table II.

A striking feature of this series is the number of pulmonary cases compared to those derived from the ear. This is at variance with the usual finding. For instance, Evans found 109 ear cases to forty-six pulmonary out of 194 cerebral abscesses. Weil estimated that 40 per cent were caused by otitis media. Practically all authors

Read before the Ramsey County Medical Society.

TABLE I. PULMONARY LESIONS INDUCING BRAIN ABSCESS

Lesion	Number of Cases	
	Claytor	Shorstein
Bronchiectasis	20	38
Empyema	10	15
Purulent Bronchitis	9	2
Gangrene	7	6
Tuberculosis	5	3
Abscess	3	2
Pneumonia	2	3
Bullet Wound	2	
	58	69

found pulmonary states second in frequency to ear conditions.

The distribution of the pulmonary cases is shown in Table III.

One case of lung abscess, in a young man with brain abscess, is not reported on account of lack of autopsy findings. One patient with lung abscess had pyemia, but is included in this group on account of the original condition of aspiration pneumonia and lung abscess. This group is subdivided into: (1) acute and (2) chronic—basing this division on the pulmonary condition. The acute cases are six in number: three bronchopneumonia, one miliary tuberculosis, one aspiration pneumonia with lung abscess and pyemia, and one congenital heart with pneumonia. The six chronic cases are: three bronchiectasis, two lung abscesses and one empyemia.

An example of the chronic group is the following.

Case 5.—A white man, aged sixty, was admitted to the hospital February 3, 1936. He had been in rather poor health the past few years and he had had a chronic cough for four years. Three years ago he had had an actual hemorrhage and had had more hemoptysis lately. He was hospitalized in 1935 for six weeks on account of what was thought to be unresolved pneumonia. It was suspected at that time he might have a carcinoma of the lung.

The present illness began suddenly two weeks previous to admission with a chill which lasted almost three hours, followed by sweating. He seemed to be all right, except for loss of appetite, until January 30, 1936, when he had another chill and complained of pain throughout his entire body. The next day he was unable to speak, had respiratory difficulty and was unable to swallow. The following day he regained his ability to speak and was apparently better, but he complained of a headache. The following day, February 2, 1936, he became quite weak and complained of more headache and difficulty in swallowing, and he vomited. The morning of February 3 he was about the same until noon, when he complained of a stiff neck and that afternoon he became delirious and saw things on the wall. He was stuporous at times. He was hospitalized at 8 p.m., February 3, 1936, and died twenty-four hours later.

TABLE II. CEREBRAL ABSCESSES (1924-1940)

Pulmonary	13
Ear	7
Nose	3
Osteomyelitis	3
Skull Fracture	3
Endocarditis	3
Leg Abscess	1
Tooth Extraction	1
Bullet Wound	1
Spina Bifida	1
	36

TABLE III. PULMONARY CONDITIONS

Bronchiectasis	3
Bronchopneumonia	3
Lung Abscess	3
Empyema	1
Cong. Heart-Pneumonia	1
Pulmonary Tuberculosis	1
	12

This is rather typical of the chronic group. It is a history of years of chronic lung trouble which is suddenly overshadowed by symptoms of sepsis of the nervous system coming on suddenly, although somewhat gradual at first. Once established it rapidly progressed to death. The following is an example of a brain abscess following an acute pulmonary disease.

Case 4.—A white girl of six, who had been a "blue baby" and had shown signs of heart disease since birth, was admitted to the Receiving Room of the

Ancker Hospital, January 17, 1936. She died ten minutes later. A cursory examination revealed a stiff neck, marked clubbing of the fingers and cyanosis. She had been sick for one week from signs of an upper respiratory infection and had complained of pain in the legs. Post-mortem revealed a patent interventricular septum, brain abscess, pulmonary stenosis and meningitis. A culture from the meninges showed the presence of Bacillus coli. Staphylococcus albus (non hemolytic) and Streptococcus hemolyticus in small numbers.

The frequency of association between congenital heart disease and brain abscess has been commented on by Gowers, Shorstein and Parker. Secondary change in the lung and short circuiting of the circulation were believed factors in producing this association.

The average duration of the primary disease in the acute cases was 7.5 days. Of the chronic group one was ill nine years; the shortest six months, the average being four years. There were eight males and four females. Ages ranged in all decades from thirteen months to sixty years, the acute group being the younger. In the following table are arranged the twelve cases. The sequence of neurological symptoms as they arose, their duration and post-mortem report are recorded in Table IV.

TABLE IV.

Case	Clincial Course of Neurological Complications	Duration	Post-mortem Report
1.	Fever, irritability, twitching left side, neck rigidity, drowsiness, convulsions, left hemiparesis, choked discs, stupor, purulent spinal fluid	28 days	Multiple abscesses in occipital right parietal and left temporal lobes—ruptured.
2.	Headache, fever, drowsiness, stupor, delirium, rigidity of neck, purulent spinal fluid	4 days	Multiple abscesses in left frontal temporal and occipital lobes—ruptured
3.	Drowsiness, fever, weakness, pain in neck, headaches, vomiting, stupor, Kernig, Babinski, purulent spinal fluid	8 days	Abscess right frontal lobe—ruptured
4.	Fever, headache, rigid neck, stuporous, purulent spinal fluid	7 days	Multiple abscesses in right occipital lobe.
5.	Chills, aphasia, headache, vomiting, neck rigidity, stupor, purulent spinal fluid	5 days	Abscess in left parietal lobe.
6.	Headache, fever, drowsiness, stiff neck, stuporous, purulent spinal fluid	4 days	Multiple abscesses in both occipital lobes—ruptured.
7.	Headache, weakness, fever, drowsiness, weakness left side, delirium, rigid neck, slow respiration, strabismus, left hemiparalysis, purulent spinal fluid	11 days	Multiple abscesses in pons and cerebral peduncle on right.
8.	Muttering delirium (picked up by police), stiff neck, fever, stupor, purulent spinal fluid	10 days	Multiple abscesses in occipital lobes, both temporal and parietal lobes, greater on left than right.
9.	Vomiting, headache, rigid neck, restless, semicoma, unconscious, purulent spinal fluid	4 days	Multiple abscesses, bilateral.
10.	Headache, fever, paresis left arm, right ptosis, drowsiness, hiccough, semicoma, spinal cells 342	8 days	Multiple abscesses.
11.	Convulsions, fever, drowsiness, rigidity of neck, purulent spinal fluid	3 days	Multiple abscesses.
12.	Chills, fever, listless, confused, stuporous	10 days	Multiple abscesses.

The general symptoms of the pulmonary group were no different from those of brain abscesses from other sources. They were headache, fever, rigidity of the neck, increase of cells in the spinal fluid (or purulent fluid), leukocytosis, drowsiness, delirium, stupor, unconscious-

ness. The initial symptom was usually headache, although chills, convulsions, vomiting or drowsiness were also noted.

The progress of symptoms after once starting was rapid. It made little difference whether the pulmonary condition was acute or chronic. The duration of the symptoms of abscess in the acute was nine and a half days and that of the chronic seven days. Of the entire group only one was in the hospital for treatment of the pulmonary condition. At the time of admittance to the hospital three were delirious, one stuporous, one unconscious and two died in the Receiving Room. There were localized findings in three cases. The remainder had only general symptoms of a purulent meningitis. Of the chronic pulmonary group four had multiple abscesses and two had single. This corresponds somewhat with larger series having up to 46 per cent single ones. The entire acute pulmonary group had multiple abscesses. The distribution favored no particular lobe or side of the brain. As expected there were no cerebellar involvements.

It is instantly apparent that the entire acute group were doomed on account of the multiplicity of abscesses. In the chronic group two were single. One of these presented some localizing symptoms. Unfortunately both had ruptured abscesses and purulent meningitis on admittance. However, every case is a law unto itself and no sweeping statement is justified. Some fundamental factors that must be considered in dealing with a patient of this group are: (1) the 50 per cent or less possibility of the abscess being single; (2) the general condition of the patient as to ability to stand surgery; (3) the presence of localizing symptoms; (4) the primary disease. Cases successfully treated are recorded. Our attitude should be of an open mind, fully realizing the odds against survival, but when the situation warrants, the opportunity should be grasped and risks, although heavy, should be taken.

The second group found in this series was composed of cases associated with ulcerative endocarditis. In acute fulminating pyemia the brain, as already mentioned, is rarely affected. In the protracted complicated illness of chronic cases the brain, along with other organs, suffers from the deposition of purulent emboli and brain abscesses may result. The outlook after this event is practically hopeless, the main interest being pathological rather than clinical. When brain abscess develops, these patients die, because it is the last and most lethal of a series of complications which in themselves would ultimately prove fatal. Three patients constituted this group; two had infarcts of brain, spleen, kidney as well as brain abscesses. Their illness was prolonged and complicated. The third was somewhat different in that no infarcts were found except one in the brain.

Case 13.—A white woman of forty-four suddenly developed pain in the right lower quadrant. Two days later she developed chills and high fever. The chills continued intermittently for three weeks. She then entered Ancker Hospital in a weak, listless, anemic condition. A blood culture of B. coli was found on six different occasions. She had occasional chills and her temperature ranged from 99 to 105. A few superficial abscesses were found to contain B. coli. She improved under sulfanilamide until approximately two months after the onset of her illness, when she suddenly developed a chilly sensation of the left side which was superseded by a left hemiplegia and some loss of sensation. She regained some of her sensation, but in a few days had a relapse and died.

The autopsy diagnosis was: septicemia, abscess in the right parietal lobe surrounded by an area of softening, acute and chronic pyelonephritis, ureteral stone, and acute splenitis. The sequence of events was apparently pyelonephritis, endocarditis, septicemia, brain infarction and abscesses.

The third group of cases is that associated with suppurative processes which had subsided in three instances and improved in one. In some the original condition had healed so long ago that no casual connection was immediately suspected. An example is:

Case 15.—A white child, of seven months, developed an infection of the face two weeks after birth. Following this an ulcer of the left leg appeared and healed in four weeks. Within a month jerking of the right arm appeared and ceased under calcium therapy. It reappeared in another month and again ceased. There was then a definite latent period until three weeks prior to admittance, when the child seemed ill, had a stiff neck and a large head was noted.

On admittance an enlarged head, dilation of the veins of the scalp, tense fontanel, slight rigidity of the neck, slight fever, leukocytosis and 1,711 cells in the spinal fluid were noted. During the next five weeks the cell count diminished, a diagnosis of left frontal abscess was made by aspiration, a craniotomy performed, and the abscess drained.

Table V briefly describes the original infection, clinical course of cerebral symptoms, and findings on autopsy or operation:

The characteristics of this group, besides the lengthened interval between the original infection and cerebral involvement, is the slow development of symptoms compared with the pulmonary group at the age of three, undoubtedly had a skull injury and a possible osteomyelitis from falling on a pair of scissors. This assumption seems justified by the appearance of two spicula of bone up

TABLE V. METASTATIC ABSCESS OF BRAIN SECONDARY TO INFECTION THAT HAD SUBSIDED OR IMPROVED

Case	Original Infection	Duration of Illness	Clinical Course of Cerebral Complications	Duration before Death	Autopsy or Operation
13.	Ulcer of leg 4 plus Wassermann Paresis	1 month	Numbness and paresis of left hand. Jacksonian attacks, left side, beginning in hand. Cerebration slow, drowsiness, stupor.	48 days	Walled off abscess in right parietal lobe. 4.5 cm. in diameter. Softening around abscess.
14.	Osteomyelitis left leg —right shoulder in 1928 and right thigh in 1931. Well until 1939.	3 years	Headaches for three weeks. Pain in neck three days. Slight neck rigidity. Right knee and ankle jerk greater than left. Babinski (?) on right, stupor, purulent spinal fluid. Coma.	4 weeks	Large abscess in left occipital lobe, ruptured into ventricle. Osteomyelitis of occipital bone.
15.	Infection of face Ulcer of leg.	4 weeks	Jerking movements right arm for two weeks following infection. Ceased and returned one month later and ceased under calcium therapy. Two months later malaise, stiff neck, large head. Spinal cells 1711.	4 months	Craniotomy. Very large abscess in left frontal region.
16.	Age three — stab wound of scalp, infection, osteomyelitis. Well 19 years. Age twenty-two — acute respiratory infection, five days. Temperature 102.	Scalp 3 weeks healed 3 spicules of sequestra appeared until age twelve. Respiratory infection five days.	Headache one week after respiratory infection. Vomiting, fever, drowsiness, lethargy, stiff neck, weakness in left arm and leg. Spinal cells 450. Deepening coma.		Craniotomy two months after onset. Pocket of yellow fluid — large abscess chained. Culture Staphylococcus hemolyticus.

and the finding of single abscesses and localizing signs in three of the four. In Case 14 there probably is a justifiable objection to the diagnosis of a metastatic abscess on account of the osteomyelitis of the occipital bone. However, the two appearing synchronously after an interval of eight years and the element of metastasis being present in one lesion, and possibly in both, justified, I believe, its inclusion in this group. In Case 16, the nineteen year interval between cranial injury and formation of brain abscess presents an intriguing problem between cause and effect. This patient, to the age of twelve. At operation the aspiration of yellow fluid from within the brain substance, followed by aspiration of an abscess, suggests the presence of both a cyst and an abscess. The connection between her acute infection and abscess formation recalls Weed's experiments in producing brain abscesses. He found that introduction of pyemic organisms into the blood stream only on rare occasions produced an abscess, but that after injury of the brain they could be produced regularly in this manner. In Case 16 it is probable that similar mechanisms were in-

volved, viz.: local injury, cyst formation, reduced local resistance, acute infection, metastasis and abscess formation. On x-ray and at operation no sign of osteomyelitis or meningeal adhesions was found. In Case 14, x-ray studies would probably have helped the localization.

Summary and Conclusion

From a clinical study of nineteen cases of metastatic brain abscesses we draw the following conclusions:

1. The prognosis is mainly dependent on the acuteness and severity of the primary infection. It was hopeless in the acute pulmonary and endocarditis groups of this series.

2. In the chronic pulmonary group, although no favorable cases were present, single abscesses were found in 33 per cent. The possibility of favorable surgical intervention in an occasional case is mentioned. The rapidity of progress of the cerebral complications seems characteristic.

3. In Group 3, the marked interval between the original infection and abscess formation, the comparative slowness in development, and the finding of single abscess, seem to make this group, from a prognostic standpoint, favorable.

THE ADVANTAGES AND LIMITATIONS OF CERTAIN PRACTICAL ADJUNCTS IN THE DIAGNOSIS OF DISEASES OF THE HEART

FREDRICK A. WILLIUS, M.D.
Rochester, Minnesota

FOR thorough appraisal of the cardiovascular system the physician first utilizes the advantages of a carefully elicited history, which is then supplemented by complete physical examination of the patient. In using the expression, "complete physical examination," I do not mean an examination of the thorax, but a complete examination of the entire body. Limited examinations for apparently local complaints are to be condemned as inconclusive, treacherous, and of extremely doubtful value to both the patient and the physician. In the daily practice of medicine the physician who adheres strictly to the routine of complete and thorough examination repeatedly discovers evidence of disease entirely unrelated to the patient's presenting complaint, and frequently the patient has been completely unaware of its existence. Such unexpected revelations may comprise conditions of serious or potentially serious consequences which may be amenable to surgical removal and cure, whereas failure to recognize them at an early date likely would lead to disastrous eventualities.

It is not my intention to deal extensively with the methods of physical diagnosis in this discussion, for it must be assumed that every physician is well grounded in this subject and is thoroughly imbued with the knowledge that this approach to a diagnostic problem must necessarily supersede all other methods of clinical detection. However, with the advent of ever increasing diagnostic adjuncts, both laboratory and bedside, the tendency is developing in the medical profession to employ such methods at the expense of physical diagnosis. Progress in any field of endeavor results in a constant addition of new facts, methods, and apparatus which may result in a maze of confusion unless the individual physician has more than a casual acquaintance with the newer knowledge pertaining to disease.

The patient suffering from heart disease, and especially the patient in whom heart disease is suspected to exist, frequently has become the pathetic victim of mechanistic diagnosis. The tendency exists today for hurried questioning of the patient, followed by a rather cursory and limited physical examination, and then profound emphasis is accorded instrumental methods of examination, motivated by the hope that an instrumental method will provide the answer in one way or another. This prostitution of modern medicine is lamentable because it fails to carry out the physician's obligation to the patient and greatly devaluates the merits of the diagnostic adjunct in question.

An accessory method of diagnosis should never be employed with the idea of supersedence of careful history-taking and thorough physical ex-

From the Section on Cardiology, Mayo Clinic, Rochester, Minnesota.

amination. The various accessory methods must always be supplemental, and it is extremely important that the clinician who uses such special methods thoroughly acquaint himself with both their advantages and limitations and their ever changing order of importance from case to case.

I shall not attempt to discuss all the adjunct methods of cardiac diagnosis, but rather limit myself to those that are now directly or indirectly available to all physicians. Even though the physician may not be equipped to perform roentgenographic or electrocardiographic examination, he must acquire the knowledge necessary to interpret the results of the examinations and to correlate intelligently the findings with the complaints and the physical observations concerning the patient involved. To accept the purely technical report of a laboratory or of another physician on such isolated evidence is unsound and fraught with great danger; unless the physician who refers his patient for special study of such a character is able to interpret the resultant findings and apply them to his special problem in an understanding manner, he would be safer in relying wholly on his own observations as derived from careful physical examination.

Roentgenography

Roentgenography is a simple method to determine the size, shape, and position of the silhouette of the heart and aorta. However, certain facts regarding the variations in its technical application must be realized. For the prompt and accurate determination of the size and contour of the cardiac silhouette the teleroentgenogram is very satisfactory. In this method the corrected distance of the roentgenogram from the tube has been determined, which results in minimal distortion of the size of the silhouette. For practical purposes the extension of the silhouette to the right of the midsternum is added to the corresponding extension from the midsternum to the left border of the silhouette. This value is then compared to the transverse internal diameter of the bony thorax. Normally, the total transverse diameter of the cardiac silhouette is roughly less than 50 per cent of the internal diameter of the thorax.

However, certain variables enter into the interpretation of the cardiac silhouette, and unless they are appreciated serious errors may occur. When the diseased heart or the heart suspected of being impaired is being dealt with, it is always extremely important to ascertain whether or not the heart is enlarged. The enlarged heart, with rare exceptions, is structurally impaired, although the reverse of this statement emphatically is not true. The roentgenographic silhouette of the heart is greatly influenced by the habitus of the patient and these variations must be thoroughly appraised when judgment is expressed on the interpretation of the size of the heart.

In the tall asthenic type of bodily build, the longitudinal diameter of the thorax is lengthened and further increased by a relatively low diaphragmatic level. Under these circumstances the cardiac silhouette frequently is centrally situated, elongated and narrow, and on casual inspection gives the impression of a heart presumed to be smaller than the average normal heart. Such silhouettes may be considerably less than 50 per cent of the internal transverse diameter of the thorax in size and yet represent abnormal enlargement of the heart. It is necessary, under these conditions, to appraise carefully the contour of the silhouette, seeking abnormal prominences of the regions of the individual chambers of the heart, alterations in the shadow of the visible aorta, and, particularly, prominence of the conus arteriosus, the region in which the pulmonary artery joins the right ventricle. A prominent conus arteriosus commonly is present in mitral stenosis, even in the presence of an otherwise normally sized cardiac silhouette. It also occurs in various types of congenital cardiac defects.

In the short, stocky and overweight patient the exact reversal of these conditions exists. The thorax is diminished in its longitudinal diameter, the diaphragm is situated at a rather high level and the lateral diameter of the thorax commonly is increased. This status results in a cardiac silhouette that is broadened in its lateral diameter and shortened in its longitudinal diameter, and it appears to be pushed up by the high level of the diaphragm. Such a silhouette not uncommonly is interpreted as significant of an enlarged heart, whereas actual measurement and correlation of the cardiothoracic ratio reveal the contrary. In this connection the well-established fact should not be forgotten that within physiologic limits the weight of the heart parallels the weight of the body. In extreme obesity, the physiologic limits

may be rapidly supplanted by pathologic limits. Pericardial adhesions and calcification of the pericardium are not uncommonly demonstrated.

Lateral and oblique views of the heart at times give valuable additional information, but surely do not fall into the category of routine procedures. This is likewise true of roentgenograms of the esophagus, which at times are of distinct value, particularly in the detailed study of the auricles.

Roentgenography is an extremely valuable supplemental method of cardiac diagnosis, but its value obviously rests on an understanding of its advantages under one set of circumstances and of its limitations under another. It is a method that today is available to virtually all physicians, and its full utilization is urged with the reservation that the interpretation of its results be applied in an intelligent manner.

Roentgenoscopy

Roentgenoscopy is of definite value under certain circumstances, but certainly should not supplant teleroentgenography as a routine procedure. It is obviously valuable in observation of the beating heart, permits the recognition of abnormal pulsations and of fixation of certain regions of the organ and enables the examiner to determine the pulsation of regions of increased density which may or may not be proved to represent dilatation or aneurysm of the aorta. Special attention to the valvular regions usually permits identification of calcium deposits when they are present in the valvular leaflets and rings, notably in the aortic valve. Cardiac infarcts, particularly when they are situated near the apex of the heart or are encroaching on its lateral border, will be detectable by a region of systolic expansion, instead of the normal recession. Extensive thinning of the left ventricle, the so-called ventricular aneurysm, consequent to a large myocardial infarct, may be visible clearly as a bulge in the cardiac silhouette.

Electrocardiography

Electrocardiography now has been accorded widespread use so that the patient frequently demands that a record be taken. The layman cannot be expected to have sound judgment in this matter because he is inclined to view this clinical adjunct as a method that never fails to inscribe the answer as to whether the heart is normal or impaired, and, if impaired, how seriously. Unfortunately, this lay philosophy has become disseminated in an alarming manner among physicians, and a method of precision is being unwisely applied and its observations are being badly interpreted.

The electrocardiogram is the graphic inscription of the electrical activity of the heart, and it must be made under prescribed and universally accepted methods of standardization. Electrocardiography is a delicate method of registration, and one which is subject to certain environmental variables and definitely to physiologic variables in the individual patient, even when the heart is perfectly normal. As in the case of the teleroentgenogram, the habitus of the patient somewhat influences the basic characteristics of his electrocardiogram. Changes in posture invariably result in minor variations in the resulting electrocardiograms, so that the physician must be aware of these physiologic variations if he is to avoid error. He must not accord importance to minor variations in two electrocardiograms, when one was recorded while the patient was sitting erect in a chair and the other was recorded with the patient in the recumbent posture.

The determination of a clear-cut electrocardiographic abnormality never should be the basis for final commitment, because the making of such a commitment is unwise and dangerous until judicious correlation of the findings of abnormality is made with the patient's clinical history, physical observations and other pertinent data. It is a great mistake for a physician to attempt to express a diagnostic opinion on the basis of the electrocardiogram alone. Nevertheless, this practice has become so universal that I fear the future of electrocardiography will be one of increasing uncertainty and confusion, rather than one of progressive certainty and clarity. A new order of specialist has been evolved, the so-called electrocardiographer. He has acquired an electrocardiograph and has learned enough of its technical secrets, invariably acquired through the help of a high-pressure salesman, to permit him to register reasonably good records. He then learns the basic principles of electrocardiographic interpretation, so that his trained eye reaches that stage of perfection whereby he is enabled at a glance to detect abnormalities. These are then recorded at the bottom of the folder. This could be an ideal point at which to stop, but such self-restraint usually is not forthcoming; instead, he

ponders a moment and then inscribes a clinical diagnosis for a patient with whom he has had only casual contact and whom he has not examined (because the patient was referred by another physician). The resulting clinical diagnosis may be either vague or definite. Numerous examples could be presented, but I am certain that I need mention only a few to verify the correctness of my contention. This electrocardiogram then, suggests "myocardial disease," "coronary disease a likelihood," "myocardial weakness," and even the prediction of "valvular disease" has been encountered.

Needless to state, this increasing perversion of a valuable method of diagnosis is lamentable. The so-called electrocardiographer has placed himself in an unenviable position: his procedure has removed him from the rank of a physician to that of a restricted technician. I am certain that this was not his original intention.

The physician who conscientiously desires to learn electrocardiography can readily do so, but I sincerely advise him to learn this science before he purchases an instrument. A few years ago the cost of electrocardiographic equipment precluded its widespread use, but now certain less expensive and certain cheap portable units have made the method available to many more physicians than formerly. Censure must not be limited to the medical profession alone, because unwarranted high-pressure salesmanship on the part of certain manufacturers has promoted this unfortunate situation. It has recently come to my attention that physicians who were contemplating the purchase of electrocardiographs frankly stated to salesmen that they were not familiar with the interpretation of electrocardiograms, only to be assured that for a nominal fee the records could be sent to the manufacturer for interpretation. Such conduct must not be tolerated by the medical profession, and it is only the individual physician who can alter this situation by his refusal to enter into such a ridiculous arrangement. He should critically examine various instruments before concluding to purchase one.

The electrocardiogram is the registration of antagonistic electrical effects which vary from instant to instant; they are antagonistic in a regional manner, as, for instance, between apex and base, anterior and posterior surfaces, right and left sides of the heart. The electrocardiogram is influenced by innumerable alterations that may affect the muscle mass of the heart or isolated regions only; or combined alterations may exist circumstantially in such a manner that a perfectly normal record may be obtained of a seriously impaired organ.

During recent years, as the result of meticulously thorough studies based on careful clinical, electrocardiographic, and pathologic correlations, the term "electrocardiographic pattern" has come into general use. These studies have been signal contributions to electrocardiography, yet, like the science itself, have been misinterpreted and abused, and minor graphic alterations casually resembling the more characteristic findings frequently have been accepted as being genuine, when in reality they are counterfeit. For example, in many cases acute myocardial infarction inscribes a certain type of electrocardiogram that is well known and is peculiarly characteristic. However, in many other cases this is not true. It is in such instances, particularly, that the clinician must utilize his clinical sense to the utmost and not be misled by a record that does not reveal the conditions which he anticipated. More than one infarct occurring within a short period, infarction involving the interventricular septum, and pericarditis, may obliterate many of the characteristics of the classic pattern. Even when the classic pattern is existent, I demand the right to examine the patient before making a definite commitment.

Many other examples of a similar nature could be presented, but I am hopeful that my attitude in this matter has been clearly stated.

Circulation Time

Several simple methods have been devised for estimation of the time of circulation between two known points in the system. I shall limit my discussion to consideration of a satisfactory and simple method which can be performed in the office or at the bedside in a very short period, without any elaborate equipment. A 10 c.c. syringe and needle are all that are required. By the injection of 5 c.c. of sodium dehydrocholate (decholin) into the median basilic vein, the time of the transit of this substance to the tongue can be determined. The patient recognizes arrival of the substance at the tongue by a sudden, bitter, and very pungent taste which very promptly is lost. The instant the substance has been in-

jected is noted by the second hand of an ordinary watch or a stop watch, and is recorded; again, the instant the patient tastes the material (which he indicates by the declaration, "now") is noted. The normal time for this circuit to be made ranges from ten to sixteen seconds.

During the time it leaves the median basilic vein and until it is delivered to the arteries of the tongue, the substance reaches the right side of the heart, passes through the pumonary circulation, reaches the left side of the heart and is disseminated into the systemic arterial circulation. Marked shortening of the circulation rate provides extremely valuable data referable to circulatory shunts, such as occur in patency of the interauricular and interventricular septa, and by means of which some of the material as well as some of the blood escapes the pulmonary circulation and passes immediately into the left side of the heart. Diminution of the circulatory rate to seven or eight seconds or less is significant.

In a contrary manner, prolongation of the circulation rate may occur, particularly in congestive heart failure when venous pressure is increased beyond normal. The value of the method in such circumstances is doubtful, owing to the fact that other obvious factors indicating a state of failure are present.

Conclusions

It thus is apparent that each clinical adjunct considered herein is of distinct value in the diagnosis of diseases of the heart, yet no single method is fruitful under all circumstances. Each has its advantages and limitations, which vary under different disease states and almost from patient to patient, and it therefore is imperative that the physician who utilizes these supplemental clinical procedures clearly recognize these facts, interpret the observations judiciously and wisely, and always correlate them with the patient's history and the observations made at careful physical examination.

RESULTS OF THE LOWMAN OPERATION FOR PARALYSIS OF THE ABDOMINAL MUSCLES

GEORGE A. WILLIAMSON, M.D., and JOHN H. MOE, M.D.
Saint Paul, Minnesota

and

W. COMPERE BASOM, M.D.
Rochester, Minnesota

LITTLE attention has been given to the loss of integrity of the abdominal musculature. In 1931, Lang[1] stated that an operative method for overcoming paralysis of the abdominal muscles, though desirable, had not been attempted so far as he knew.

Paralysis of the musculature of the abdominal wall is far more serious than has been previously appreciated and may interfere markedly with the harmonious function of the body as a whole. This was Lowman's[2] viewpoint in 1931. He had observed patients who had poor locomotion which apparently was due to poor stability of the trunk on the pelvis. He also thought that there might be a specific relationship between abdominal paralysis and paralytic scoliosis.

From the orthopedic services of Drs. C. C. Chatterton and Wallace H. Cole, Gillette State Hospital for Crippled Children, Saint Paul, Minnesota (Williamson and Moe), and the Mayo Foundation, Rochester, Minnesota (Basom, Fellow in Orthopedic Surgery).

The practical use of fascial transplants to repair structural defects has been well established, but Lowman was the first to devise a plan whereby a new insertion was provided for the remaining unparalyzed abdominal muscles by the use of fascial strips. He used this method in several cases[2] and found that it was possible and practical to recapture some of the lost power in the presence of partial paralysis of the abdominal muscles. He also found that stabilization of the trunk on the pelvis could be improved.[4]

Since 1933, thirty-one operative procedures of the Lowman type have been performed on twenty-nine patients at the Gillette State Hospital for Crippled Children. This procedure was used in cases in which the musculature of a portion or of all of the abdominal wall was weakened. Fascial strips were used to bridge the paralyzed region and thus to form a new point of insertion for

the remaining uninvolved muscles. Many patterns were formed by the fascia according to the distribution of abdominal paralysis. In all cases, the paralysis was due to poliomyelitis.

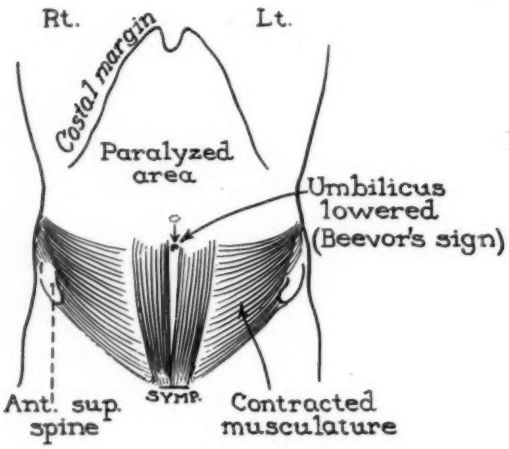


Fig. 1. Beevor's sign indicates paralysis of upper portion of rectus muscles.

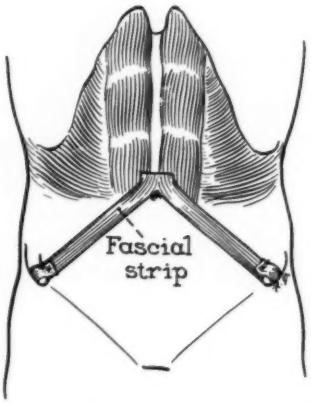


Fig. 3. Fascial transplant for paralysis of the muscles of the lower part of the abdomen.

In seven cases the umbilicus shifted downward with contraction of the abdominal muscles. Beevor's sign (Fig. 1) thus revealed that the upper portions of the rectus muscles were paralyzed. Fascia was obtained from the thigh in a rectangular piece. Throughout most of its length this was split into two or three strips as the condition indicated. The one end which was to be fixed around the umbilicus was left intact, however. Through a small skin incision, the fascia was placed around the umbilicus and sutured to the adjacent anterior sheath of the rectus muscle. The strips were extended subcutaneously to each costal margin, usually to the seventh and eighth ribs in the midclavicular line (Fig. 2). This gave an additional new insertion for the unparalyzed

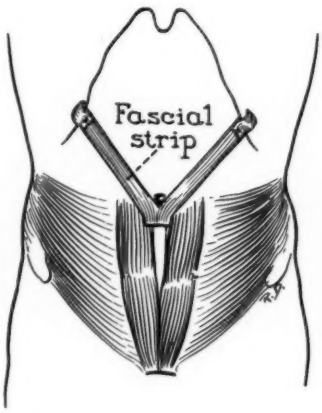


Fig. 2. Fascia lata transplant for paralysis of the muscles of the upper part of the abdomen.

abdominal musculature. The muscles thus working through the fascia helped support the weakened part of the abdominal wall. In some cases two strips instead of one were used to each side.

In ten cases there was a paralysis of the lower abdominal muscles. The fascia was attached to the rectus sheath and muscle and around the umbilicus. A strip was extended subcutaneously to each anterior superior iliac spine (Fig. 3). In some of these cases a strip was also extended from the umbilicus to the symphysis pubis. A drill hole large enough to admit the strip of fascia was made in the region of each anterior superior spine. The end of the fascial strip was pulled through this hole, doubled back and sutured to itself with silk. The fascia to the symphysis pubis was extended inside the rectus sheath to the pubic bone where it was run through a slit and sutured to itself. In five of these cases only one strip of fascia was used to correct the paralysis of the lower abdominal muscles. The fascia pulled out in two of these cases and at another operation the fascia was extended to the anterior superior iliac spines.

Examination in six cases revealed that the umbilicus shifted laterally instead of vertically when the abdominal muscles were contracted. Beevor's sign thus indicated that the oblique and transverse abdominal muscles were paralyzed on one side. In these cases the fascia was an-

chored about the umbilicus as in the preceding cases. Then one strip was brought subcutaneously to the costal margin as far laterally as possible making as wide an angle as possible and directing the line of force more parallel to the fibers of the oblique muscles. The lower strip was taken through a subcutaneous tunnel, through a drill hole in the anterior superior spine of the ilium on the same paralyzed side. The fascia was sutured with silk (Fig. 4).

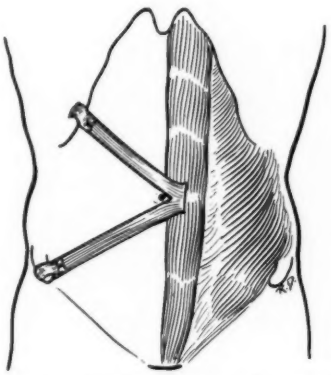


Fig. 4. Fascial transplant for paralysis of the muscles of the right side of the abdomen.

One patient had paralysis of the abdominal muscles in the left lower quadrant. In this case the umbilicus shifted upward and to the right. The fascial strips were attached to the umbilicus, and to the left anterior superior spine and through the sheath of the left rectus muscle to the pubis (Fig. 5).

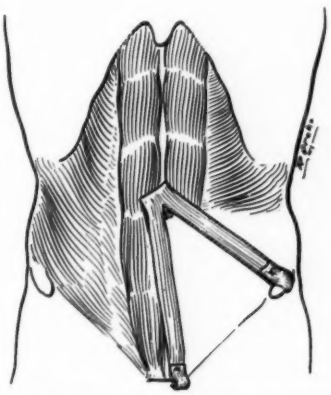


Fig. 5. Fascial transplant for paralysis of the muscles of the left lower quadrant of the abdomen.

In another case the musculature in the left upper quadrant was good. The remaining portion of the abdominal wall was unsupported (Fig. 6).

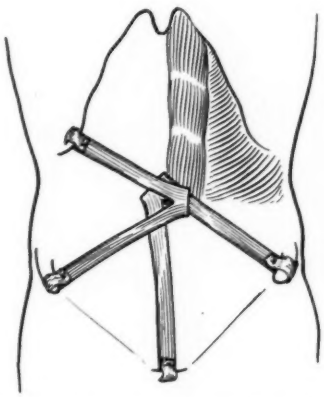


Fig. 6. Fascial transplant for paralysis of all abdominal muscles except the left upper quadrant.

In four cases the muscles of the entire abdominal wall were paralyzed. In these, the fascia was fixed at the umbilicus and attached to each costal margin and to each anterior superior spine (Fig. 7).

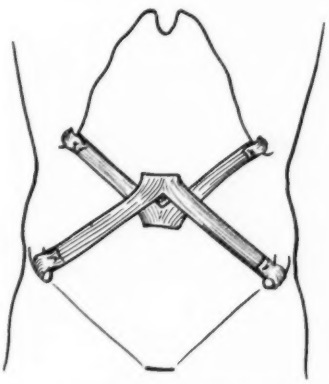


Fig. 7. Fascial transplant for paralysis of all the abdominal muscles.

In June, 1941, when the follow-up study was made, the period which had elapsed after operation was from six to ten months in seven cases, one year in seven, two years in four, three years in four, five years in three and six years in four cases.

Results

Of the twenty-nine patients who were subjected to operation, twenty-eight were improved. All the patients who had paralysis of the entire

abdominal wall had difficulty in voiding and defecating. After the operation they were able to perform these acts comfortably and also they felt more secure.

It was noted that the fascial bands were at first small and string-like. Later, after training, these bands became strong, rope-like cords. Some patients, particularly those who had weakness of the upper part of the abdominal wall and had been unable to raise the head, could accomplish this easily after operation. Some of the patients eventually were able to rise unassisted to a sitting position.

The support given between the thoracic cage and pelvis decreased the lumbar lordosis in all the cases in which this deformity was present. Bulging of the abdominal wall was decreased. Only fourteen patients had to continue to wear support of some kind.

The most noticeable results in all the cases in which improvement resulted from operation were as follows: fatigue was lessened; the patients could stand and sit without tiring, and they were able to perform the acts of walking and sitting better; the gait was more stable; they could use their braces better. The support between the thoracic cage and pelvis enabled the patient to swing the legs better even when they were wearing braces.

Effect on scoliosis.—In twenty of these cases scoliosis was present at the time of the first examination. Additional treatment for this condition was necessary in every case. In nine of the cases there was no deformity of the spinal column before the operation. No deformity developed in any case afterward so far as was ascertained.

Summary and Conclusions

Thirty-one operations were performed on twenty-nine patients; the first operation in two cases was unsatisfactory and another operation was performed. Only one patient did not improve after operation.

This procedure was used primarily to reinforce the weakened abdominal wall and secondarily to aid in the prevention of scoliosis. Apparently it was a worth-while procedure from the standpoint of stabilizing the abdominal wall but was probably of no value in the prevention of scoliosis.

After reinforcement of the abdominal wall, sitting and walking can be performed better, the gait is improved even with the presence of braces on the extremities, fatigue is lessened, lumbar lordosis and bulging of the abdominal wall are decreased and control of the bladder and function of the bowel in cases of paralysis of the entire abdominal wall usually are improved.

References

1. Lang, Fritz: American and German orthopedic surgery. Jour. Bone and Joint Surg. n. s., 13:479-490, (July) 1931.
2. Lowman, C. L.: Plastic repair for paralysis of abdominal musculature; a preliminary report. New England Jour. Med., 205:1187-1188, (Dec. 17) 1931.
3. Lowman, C. L.: The relation of the abdominal muscles to paralytic scoliosis. Jour. Bone and Joint urg. n. s., 14: 763-772, (Oct.) 1932.
4. Lowman, C. L.: Correction of paralytic instability of the pelvis. Am. Jour. Surg., 29:420-423, (Sept.) 1935.

THE DIAGNOSIS OF THE ACTIVITY OF PULMONARY TUBERCULOSIS

ROBERTS DAVIES, M.D.
Nopeming Sanatorium
Nopeming, Minnesota

THE determination of the activity or inactivity of a tuberculous lesion is a problem that frequently confronts the general practitioner and occurs occasionally in the practice of almost every specialist. It is a problem of importance because failure to appreciate activity may mean failure to forestall a long and disabling illness and even death. On the other hand, the misguided treatment of an inactive lesion means loss of time and money to the patient and frequently the serious disruption of his life.

The concept of activity of a tuberculous lesion is purely clinical. An active lesion is one which is unstable and likely to increase. Conversely, an inactive lesion is one which is stable and unlikely to spread. The diagnosis of such a lesion by no means precludes the presence of living tubercle bacilli. Since such bacilli are always potentially

Presented to the Medical Staff of St. Luke's Hospital, Duluth, Minnesota, June 19, 1941.

dangerous, it follows that diagnosis of inactivity must be made with reservations.

In arriving at a judgment of activity, the local symptoms of the pulmonary disease, such as cough, expectoration, chest pain, and hemoptysis, are usually considered first. In a general way the more such symptoms are present and the greater their severity, the more likely it is that the lesion is active. However, the differential value of such local symptoms is not great because they are all frequently absent in the presence of active tuberculosis and may all be present, including hemoptysis, with a thoroughly stable and inactive lesion.

The general or toxic symptoms of tuberculosis, such as fever, sweats, tiredness, loss of appetite, and loss of weight, are of more value. In the presence of a tuberculous lesion and in the absence of any other cause, they constitute a rather dependable evidence of activity. The most important thing to remember about all symptoms, both local and general, is that their complete absence is compatible with active and progressive tuberculosis.

Physical findings should be mentioned rather for the sake of completeness than because they are helpful in the diagnosis of activity. Abnormal physical findings are frequently entirely absent in progressive tuberculosis and, conversely, extensive abnormal signs including numerous moist rales may be found over lesions that have been stable and inactive for years.

Laboratory findings are often valuable in making a diagnosis of activity. The presence of tubercle bacilli in smears made from plain or concentrated sputum specimens is a definite and valuable evidence of activity. If bacilli are present in such small numbers that culture or guinea pig inoculation of sputum or gastric contents is necessary to demonstrate them, the significance of the finding in terms of activity is not clear. For example, tubercle bacilli are said to have been demonstrated by such methods in gastric contents of persons whose chest x-ray showed no lesion except calcified hilus glands and even in persons without any demonstrable tuberculous focus.[4] Such findings obviously cannot be considered as proof of an active pulmonary process at least until such apparently paradoxical results are explained. One must also remember that not all acid-fast bacilli produce tuberculosis. Approximately 50 per cent of gastric specimens that show acid-fast bacilli on smear will not produce tuberculosis in guinea pigs.[4] Ten per cent of cases of pulmonary malignancy[1] and an undetermined percentage of lung abscess, bronchiectasis, and other chronic pulmonary lesions occasionally show a few acid-fast bacilli on sputum smears. Therefore, a single report of a few acid-fast bacilli which cannot be confirmed is very poor evidence of activity.

An elevated sedimentation rate, leukocytosis, and an increase in the percentage of polymorphonuclear cells and monocytes are all nonspecific evidence of activity analogous to general symptoms, such as fever, loss of appetite, and loss of weight. In the presence of a tuberculous lesion and in the absence of any other explanation, such evidence is important. The sedimentation rate is the most sensitive and therefore the most valuable of these findings. Just as in the case of symptoms, it should be stressed that negative laboratory findings are of no value in ruling out activity of a tuberculous lesion. Active and progressive tuberculosis with normal sedimentation rate and normal white count and differential is a common occurrence. This is especially true of the so-called subprimary tuberculous lesion which may follow soon after infection in the adult and is by no means an innocuous lesion.[2]

X-ray findings are the most important single factor in the diagnosis of activity of a tuberculous pulmonary lesion. The x-ray film may permit a definite diagnosis of active disease in the absence of any confirmatory evidence from clinical or laboratory findings.[3] On the other hand, negative x-ray evidence, unlike negative clinical or laboratory evidence, is of distinct value in arriving at a diagnosis of stable or inactive disease.

In interpreting the x-ray evidence, three types of findings must be considered: first, the presence or absence of effusion; second, the presence or absence of cavity; and third, the nature of the infiltration. The presence of an effusion, diagnosed by physical findings or x-ray and confirmed by aspiration, should be considered an evidence of active tuberculosis unless some other cause can be found. The presence of cavity is an equally dependable sign of activity of a tuberculous lesion. It is true that occasionally tuberculosis heals completely leaving an epithelialized tissue defect or cavity, but such cases are uncommon and in general the presence of cavity means active disease.

To understand the basis of an x-ray diagnosis of activity in tuberculosis one must be familiar with three different pictures of tuberculous infiltration. The histological significance of these x-ray findings is not yet well understood and the three types of lesions grade into each other without any distinct line of separation. There are also a considerable number of other x-ray appearances that can be produced by tuberculosis but these will not be considered, some because they are so unusual as to be relatively unimportant, and some because they are of no aid in arriving at a diagnosis of activity.

The first important type of infiltration is the so-called "soft" or "exudative" lesion made up of small cottony spots or mottling of rather light density and with hazy and indistinct borders. Such an appearance is not indisputable evidence of tuberculosis, but it is pathognomonic of an active lesion and as such is about as dependable as a positive biopsy in the diagnosis of carcinoma. With such an appearance in all or part of a pulmonary lesion, if the diagnosis of tuberculosis can be made at all, the diagnosis of active disease can be made with assurance, even in the absence of any confirmatory clinical or laboratory data.

The second important type of x-ray lesion is made up principally of streaks or linear shadows with somewhat indistinct margins. Any mottling present is more dense than in the first type of lesion and has more sharply defined borders. With this type of infiltration, the roentgenologist may say that the disease does not appear entirely arrested, but he cannot make a definite diagnosis either of activity or of stability. It may be possible with confirmatory clinical and laboratory evidence to make a definite diagnosis of activity. To diagnose an inactive lesion with such an x-ray appearance, all clinical and laboratory data must be consistent with inactivity and, in addition, the lesion must show no significant change either for better or worse on x-ray examination over a period of several years. Even then the diagnosis of stability should be made with reservations and the patient should not be discharged but should be followed indefinitely with x-ray films at six-month intervals.

The third type of infiltration to be considered is that made up of fine, string-like, sharply demarcated streaks and dense, discrete, and often calcified nodules. In this type of lesion the roentgenologist may diagnose inactive or arrested disease with considerable accuracy but not with absolute finality. No type of x-ray picture gives any assurance that all the tubercle bacilli have been killed or even permanently imprisoned in scar or calcium. Even such an apparently healed lesion may break down, sometimes after years of stability, and produce progressive and dangerous disease. A patient with any definitely tuberculous pulmonary lesion should never be told that his disease is cured or that it is only a scar and of no importance. He should be encouraged to have x-ray films made at six-month or at least yearly intervals throughout his life, so that if reactivation does occur, it will be diagnosed early.

Conclusions

1. A diagnosis of active pulmonary tuberculosis can often be made on the basis of a single x-ray examination even in the absence of any confirmatory clinical or laboratory data.

2. Frequently x-ray examination of a tuberculous pulmonary lesion does not permit any definite diagnosis either of activity or stability, but in many such cases a definite diagnosis of activity can be made with the aid of clinical and laboratory evidence.

3. The absence of clinical and laboratory evidence of activity is of no positive value in establishing a diagnosis of a stable tuberculous lesion.

4. An absolutely dependable diagnosis of healed tuberculosis cannot be established on any basis whatever and therefore all patients with tuberculous pulmonary lesions should be followed indefinitely with repeated x-ray examinations.

References

1. Brunn, H.: Primary carcinoma of the lung: Report of two operative cases. Arch. Surg., 12:406, (Jan.) 1926.
2. Malmros, H., and Hedvall, E.: Studien über die Entstehung und Entwicklung der Lungentuberkulose. Tuberkulose-Bibliothek (Beihefte zur Zeitschrift für Tuberculose), No. 68, 1938.
3. Rigler, L. G.: Outline of Roentgen Diagnosis. Lippincott, 1938.
4. Roper, W. H., and Ordway, W. H.: Gastric lavage in adults with pulmonary tuberculosis. Am. Rev. Tuberc., 43:543-556, (April) 1940.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

Frank C. Andrus, Pathologist

CHRONIC NEPHRITIS AND POLYCYSTIC KIDNEY DISEASE

Presentation of a Case

The case was that of a sixty-year-old colored male who was admitted to the hospital on December 1, 1941, and who expired on December 6, 1941. His first admission to the hospital was in May, 1939, when he complained of dizziness for one week's duration which came on when he stood up or walked. He experienced no dizziness while lying in bed or sitting up. Past history revealed no headaches, dyplopia, tinnitus, spots before his eyes, earaches, or buzzing in his ears. He gave a history of having had yellow fever many years ago. The cardio-respiratory and genito-urinary histories were negative save for vague pains in the region of his kidneys on occasion. Physical examination revealed a well developed and well nourished colored male. The pupils were round and equal and reacted to light and accommodation. The blood pressure was 165/100. The pharnyx was slightly injected. The cardiac dulness seemed to be displaced to the left. Examination of the chest revealed no râles. The spleen, kidneys, and liver were not palpable. The abdomen was negative. The prostate was slightly enlarged. Remainder of the examination was negative. The laboratory findings on this admission were as follows: The specific gravity of the urine was 1.024; it was acid in reaction and contained one plus albumin, no sugar, 1 to 2 red cells, and occasional pus cells per high power field. The hemoglobin was 86 per cent, the erythrocyte count 4,500,000 and the leukocyte count 6,000. A diagnosis of post-infectious vertigo or mild labyrinthitis was made. The patient was discharged as improved.

He was next seen at this hospital when he was admitted for the last time on December 1, 1941. He had had a sore throat and rhinitis for four weeks, generalized weakness for three weeks, and dyspnea and puffiness of the hands and edema of the legs for three weeks. He also had had anorexia for three days. The patient also had been slightly nauseated for a few weeks but this had disappeared during the last week of his illness. He vomited four to five times but the vomitus was not large in amount. No change had been noted in the genito-urinary system. He had had nocturia two to three times for the past twenty years. There had been no hematuria or history of previous edema or dyspnea. He did not have any visual disturbances, headaches, or chest pains other than a sensation of substernal constriction on exertion.

Physical examination on admission revealed the patient's blood pressure to be 190/110 and the pulse 90 per minute. His breathing was very deep and almost Kussmaul in character. He was not cyanotic or orthopneic. An uriniferous odor was noted to his breath. There was puffiness of the eyelids. The eye movements were normal and the pupils were normal in their reaction to light and accommodation. The mucous membranes were moderately pale and there was evidence of recent bleeding from the gums. A postnatal discharge was present. The contour of the chest was symmetrical. The breath sounds were normal and no râles could be heard. Examination of the heart revealed slight enlargement of the left ventricular type. The rhythm of the heart was regular and a soft blowing systolic murmur was heard over the apex. The abdomen was flat and the liver edge was not felt. No fluid wave or shifting dulness was noted. No masses were felt. Rectal examination revealed a slightly enlarged prostate. There was a one plus pitting edema of the ankles and lower legs. The venous pressure was 11 cm. of citrate solution. The patient developed an oliguria during hospitalization.

Laboratory findings were as follows: Serologic tests for syphilis were positive. The hemoglobin was 52 per cent with an erythrocyte count of 2,810,000 and a leukocyte count of 10,600. The urine had a specific gravity of 1.015; it contained three to four plus albumin on several occasions, no sugar, no casts, 5 to 6 red blood cells, and 2 to 3 pus cells per high power field. The blood urea nitrogen was 127 mg. per cent and the creatinine 11.5 mg. per cent. The uric acid was 6.5 mg. per cent. The carbon dioxide combining power was 17 volumes per cent. The plasma proteins revealed the albumin to be 5.52 grams per cent, the globulin 2.61 grams per cent, and the fibrinogen .28 grams per cent. A six foot heart plate revealed cardiac enlargement of the left ventricular type. A minimal calcified tuberculosis was noted in the left infraclavicular region.

The patient became markedly hyperpneic. A pericardial friction rub was heard. He became markedly weakened and dyspneic and finally expired on December 6, 1941.

Clinical Diagnosis: Chronic nephritis.

Autopsy Findings (Dr. Fingerman): The body was that of a well developed and well nourished colored male. There was a two plus pitting edema over the pretibial area. Cyanosis was noted over the lips and fingertips. There was no jaundice. The pupils were round and equal and measured 4 mm. in diameter.

Upon opening the abdomen, the peritoneal surfaces were found to be smooth and shiny. The peritoneal cavity contained 1000 cc. of clear fluid. The liver extended 10 cm. below the xiphoid process in the midline and 8 cm. below the right costal margin in the midclavicular line. The pleural cavities were covered with many fibrous adhesions especially around the left apex. The right pleural cavity contained 500 cc. and the left 800 cc. of straw-colored fluid. Upon opening the pericardial sac, a shaggy, fibrinous exudate was seen which had the so-called "bread and butter" appearance over the heart.

The heart weighed 510 grams. The wall of the left ventricle was thickened and measured 22 mm. in thickness. The valves were normal. The root of the aorta was grossly normal. The coronary arteries were patent throughout and contained a minimal degree of sclerosis in a patchy distribution.

The right lung weighed 700 grams and the left lung weighed 670 grams. The large bronchi were filled with frothy mucous. The lungs were edematous. The lungs contained scattered areas of consolidation.

The spleen weighed 170 grams and appeared entirely normal. The liver weighed 1800 grams. The capsule was rather tense. On cut section, the organ appeared congested. The gastro-intestinal tract was normal grossly. The pancreas and adrenal glands appeared normal.

The right kidney weighed 120 grams and the left kidney weighed 115 grams. The kidneys were shrunken and contained coarse deep pits on their surfaces. The capsules were strongly adherent and numerous cysts were seen on the surface and in the parenchyma of the kidneys varying from 3 mm. to 1 and 2 cm. in diameter. The cysts were present in both the cortex and the medulla of the kidneys. About one-third of the lower pole of the right kidney appeared to be the only area of normal kidney structure. The remainder of the kidneys were atrophic and cystic. The genital organs were normal. The bladder was normal.

The remainder of the examination was negative.

Anatomic Diagnoses: (1) Congenital polycystic kidneys; (2) chronic glomerulonephritis; (3) pericarditis; (4) myocardial hypertrophy; (5) uremia.

Discussion

DR. E. T. BELL: This renal disease and hypertension dates back to 1939. He gives a history of nocturia for twenty years. In 1941 he had uremia. He does have some edema which I presume to be cardiac in origin.

DR. G. E. FAHR: I don't think it could be cardiac with a reading of 11 cm. of venous pressure unless he had a higher venous pressure when he was at home and it was not taken right on admission.

DR. BELL: He also has an anemia which presumably goes with his uremia. That would mean that this is a chronic uremia. He has a story of two years of hypertension and uremia. He has a good deal of protein in the urine though he has not lost much protein from his blood. I think that the rather natural diagnosis here, in view of his slow rising blood pressure, would be chronic glomerulonephritis. The anemia means just simple chronic uremia. You can get that in any chronic uremia. I happen to know the answer here. This is a pretty tight case.

DR. FAHR: We have not ruled out polycystic kidneys. This is ruled out by palpation and pyelography. We had one case here where there was no enlargement of the kidneys. The diagnosis could not be made in the usual way. You have to think of very rare things here. The urine shows albumin and occasional white cells. His blood pressure goes up to 190/110 from 165/100; that's a little low, I would say, for the usual case of primary arteriolosclerotic kidney disease. What did his eyegrounds show?

DR. L. J. PETIT: There were flame-shaped hemorrhages, but very little arteriolar changes. There was no papilledema.

DR. FAHR: That does not give you much. Flame-shaped hemorrhages do not mean anything.

DR. E. T. BELL: It would only mean hypertension anyway, no matter what. That would not tell us whether he had malignant hypertension, glomerulonephritis, or polycystic kidneys.

DR. FAHR: Was anything palpated in the abdomen?

DR. PETIT: There were no pertinent abdominal findings.

DR. FAHR: If he had a malignant hypertension, he would have had definite eyeground findings.

DR. BELL: With the blood pressure 190/110, he could get hypertensive retinitis; that may be the basis of his renal disease. At least, the question is whether we are dealing with hypertensive type of kidney, chronic glomerulonephritis, polycystic kidneys, or something else.

DR. FAHR: Is there nothing to make you think of a lymphatic infiltration of the kidneys in the blood studies?

DR. BELL: The monocytes are increased a little, but that is all right with a chronic uremia.

DR. FAHR: They get a secondary anemia frequently long before there are any signs in the blood, that is, before there is any azotemia.

DR. BELL: He had an acidosis too, you will notice. He probably had an increase in phosphorous and decrease in blood calcium.

DR. PETIT: The blood phosphorous was 11.9 and the calcium 7.6 mg. per cent.

DR. BELL: The edema was probably due to the fact that he could not put out any fluids. Did you take a culture of the pericardial exudate? We should do that, I think. The few we have taken cultures of have streptococci in them, probably a terminal invasion. That is an uremic pericarditis. He had only one-fourth of his kidney left. He lost about three-fourths of his kidneys from cysts.

DR. FAHR: You have here two kidneys in which approximately three-fourths of the substance is destroyed by cysts. Certainly there isn't one-fourth left in this portion. A man can live on one-fifth of his total portion.

DR. BELL: The interesting thing in this case is that this patient had two types of kidney disease. The polycystic kidney is a hereditary disease. If the history in this man's family be known, there is little doubt but that we would find other examples of it. It is dominant in inheritance. Most of the members of the family will have it. But they may have it in all kinds of degrees. Just like harelip, which varies in degree from a mere slit to a cleft palate, polycystic kidneys may be in different degrees. You can have enough kidney to get along on. In unusual instances, the

kidneys are not enlarged. These are the tougher ones to diagnose. The uremia here is actually due to an associated chronic glomerulonephritis. We can think of this man as having some degree of renal insufficiency through most of his life, I suppose. That suggestion of twenty years of nocturia means he had a compensatory polyuria. The patient had moderate renal insufficiency and secreted urine about the same right through twenty-four hours, therefore, he would have to get up and empty his bladder at night. The normal man at sleep does not excrete much urine; therefore, he does not have to get up. A man with renal insufficiency has to secrete all the time, otherwise he gets uremia. If this man had that twenty years, we can be sure that he had some degree of renal insufficiency. How long he has had glomerulonephritis is not known. They last ten years on an average in all our cases, but may run as long as twenty-five years. So he probably had it a long time. That is a disease that is most often contracted in childhood but may be contracted any time in life, however.

DR. F. C. ANDRUS: Don't you think that this patient might have lived for some years if it were not for the glomerulonephritis?

DR. BELL: I think that he would have gotten along with one-fourth of his kidney. A rabbit will live with one-fourth of his kidney but his blood urea nitrogen is pretty high. If you take care of him carefully, he will live.

In testing kidney function you only find out how much functioning parenchyma the man has left. You are not testing tubules or glomeruli separately. In any test you use, you are always measuring how much kidney the patient has left. You are not testing the condition of the parenchyma as much as you are testing what he has left to work with.

PNEUMOTHORAX IN PATIENTS OVER FORTY

A survey was made of 431 white World War veterans in whom pneumothorax was instituted or attempted after they had passed their fortieth birthday, during a five-year period beginning January 1, 1935. Every one of the patients had a positive sputum and a roentgenographically demonstrable cavity at the inauguration of his collapse program. Eighty-one per cent had far advanced disease; 19% had moderately advanced lesions. The disease process was unilateral in 49.3% and bilateral in 50.7%. Fourteen per cent had at least one cavity whose diameter exceeded 4 cm. The average age was slightly under 44 years—7% were over 50. The duration of the patients' tuberculosis prior to the attempted induction of pneumothorax ranged from one month to 18 years.

Patients with apparently permanent closure of the cavities and conversion of the sputa were classed as "Successful" and these numbered 92, or 20.2%. The "Unsuccessful" numbered 48.7% and the "Impossible" 31.1%. The various complications of artificial pneumothorax occurred with no greater frequency than among younger patients. Death was due directly to the complications of pneumothorax in 5 patients. Sixteen of the patients who died had pure tuberculous empyemata, though it is difficult to estimate the degree in which the presence of intrapleural pus contributed to these deaths, for in all cases the pulmonary lesion was actively progressive. Including these 16 cases, the fatalities consequent to complications would number only 21 or 4.9% of the patients treated, about what may be expected in general.

The shorter the time the patient has been ill and the less extensive his lesion, the greater the chances for the success of the therapy and the smaller the probability of occurrence of empyema. Closure of the cavity is effected earlier in patients whose disease history has been brief, though pleural effusions (a complication of little significance in most cases) are more likely to supervene in persons who have had tuberculosis only a short time.

The time interval of cavity closure and sputum conversion varies directly with the patient's age; most of the pneumothoraces became successful in the latter half of their first year. It seems advisable, therefore, to maintain pneumothoraces of doubtful efficacy for a longer time in persons over forty than would be wise in younger patients.

Bilateral pneumothorax, properly administered in carefully selected cases, is well tolerated and ordinarily occasions no marked respiratory embarrassment. The surgical division of pleural adhesions is necessary to the completion of the collapse in a large number of persons in the fifth decade, just as it is in younger patients.

Weighing the results and the complications, the authors conclude that artificial pneumothorax is of distinct value in the treatment of patients over forty. It is not as effective as in younger persons, but neither is any other therapeutic measure. Thus far it appears that artificial pneumothorax is enduring in its effects in persons over forty, but final conclusions cannot be drawn until most or all patients in the successful group have been observed for a sufficient length of time after reëxpansion to permit accurate estimation of the lasting effectiveness of their pneumothorax.—*Artificial Pneumothorax in Patients Over Forty* by SIDNEY DIAMOND and HUBERT T. IVEY, *Amer. Rev. of Tuber.*, Apr., 1941.

HISTORY OF THE MINNESOTA STATE MEDICAL SOCIETY

By ARTHUR S. HAMILTON, M.D.
Minneapolis, Minnesota

(Continued from January issue.)

On February 1, 1870, the Society met in the Historical Society Rooms in Saint Paul, on the first anniversary of its founding.

The president, Dr. Willey, addressed the members in the following words of welcome, which seem worthy of preservation:

Gentlemen of the Minnesota State Medical Society:

Assembled today upon the first anniversary of the formation of this Society, it becomes alike my duty and my privilege, to bid you, each one and all, a hearty welcome.

The incentives which have brought together so large a body of professional men at this inclement season of the year, many from remote sections of the state, and all at no little trouble and expense, are not the incentives of self-interest or self-congratulation, but they spring, we humbly trust, from the noble desire of sustaining and building up the profession we honor—*the science and art of rational medicine*—by meeting, consulting, and interchanging views upon subjects which everywhere and always must affect the well-being of communities. Let us lay broad and deep the foundation of a Society of which we may in time feel proud, and which shall endure, let us fervently hope, long after the responsibilities which now weigh on us have descended to other hands.

In commencing our labors, then, today, let us prominently bear in mind that no sectional interests, or motives merely personal, should influence our deliberations, but that a purely catholic spirit should pervade and govern us, so that in all our doings we may work harmoniously together for the advancement, usefulness and honor of our profession. Again, gentlemen, I bid you a cordial and hearty welcome.

Drs. Boardman, Kimball and C. E. Smith, a committee on credentials, reported thirty physicians as duly qualified for membership, and, on motion, they were elected.

Drs. J. H. Stewart, Richardson, Wharton, C. P. Adams and O. J. Evans appointed a committee to nominate officers for the ensuing year, submitted the list as appears in the table of officers,† and their report was unanimously adopted.

A committee at this meeting, through Dr. Richardson, also reported on the origin, cause and treatment of typhoid fever. It would be interesting at this date to know what was then current belief in so important a matter but, unfortunately, the record is not available.

Felicitations were exchanged with the New York State Medical Society.

The committee on Dr. Willey's prizes for the essays on "Epidemics and Endemics of Minnesota" and on "Cerebrospinal Meningitis" awarded both to Dr. W. W. Sweney of Red Wing, who modestly declined to receive the money awarded him, and endorsed the check to the Society as a "prize fund" for the ensuing year.

The president announced the following standing committees:

Executive Committee.—C. P. Adams, Hastings, Chairman; Franklin Staples, Winona; C. K. Bartlett, St. Peter; J. B. Phillips, St. Paul; C. E. Smith, St. Paul.

Finance Committee.—A. G. Brisbine, St. Paul, Chairman; W. H. H. Richardson, Winona; S. B. Sheardown, Winona; E. J. Davis, Mankato; J. E. Finch, Hastings.

†Hereafter the reader is referred to the table at the end of this article (to be published in a later issue) for the results of the annual election of officers.

Publication Committee.—C. H. Boardman, St. Paul, Chairman; S. D. Flagg, St. Paul; D. W. Hand, St. Paul; E. H. Smith, St. Paul; S. B. Sheardown, Winona.

Committee on Ethics.—C. G. Goodrich, Minneapolis, Chairman; A. Wharton, St. Paul; C. Hill, Pine Island; W. W. Mayo, Rochester; Otis Ayer, Le Sueur.

Committee on Medical Societies.—F. H. Milligan, Wabasha, Chairman; A. B. Hawley, Red Wing; A. E. Ames, Minneapolis; J. B. Griswold, Taylors Falls; A. B. Stuart, Winona.

Board of Censors.—D. W. Hand, St. Paul, Chairman; A. Wharton, St. Paul; C. K. Bartlett, St. Peter; C. G. Goodrich, Minneapolis; L. Redmon, Preston.

Essayist for the Semiannual Meeting.—Dr. A. W. Daniels, St. Peter; Dr. S. D. Flagg, St. Paul (alternate).

Delegates to the American Medical Association.—H. H. Kimball, Minneapolis; C. A. McCollum, Minneapolis; J. H. Stewart, St. Paul; C. E. Smith, St. Paul; A. C. Wedge, Albert Lea; B. B. Palmer, Sauk Center; Wm. Thorne, Hastings; J. B. LeBlond, Brownsville; W. W. Mayo, Rochester.

Delegates to the National Pharmaceutical Convention.—A. B. Hawley, Red Wing; David Day, St. Paul; J. Perham, Anoka.

The president also announced the following special committees:

On Epidemics, Climatology and Hygiene.—W. W. Sweney, E. C. Cross, B. Mattocks, J. B. LeBlond, James S. McMasters.

On Practical Medicine.—C. H. Boardman, A. G. Brisbine, H. F. Noyes, Hector Galloway, J. B. McGaughey.

On Surgery.—F. Staples, J. H. Murphy, C. N. Hewitt, F. H. Milligan, E. J. Davis.

On Obstetrics and Gynecology.—A. W. Daniels, A. Wharton, A. J. Stone, Otis Ayer, W. L. Lincoln.

On Dermatology.—W. Banks, F. M. Rose, A. E. Senkler.

Dr. Hewitt, who was appointed essayist at the preceding annual meeting, read an essay on "The Relations which the Profession Sustains to the Public and the Duties Which These Relations Impose"; and, in the absence of Dr. A. E. Ames, who was in California during a portion of this year, Dr. Hutchinson read the address which Dr. Ames had prepared for the meeting. Unfortunately, neither address is now available.

Dr. Rhodes offered the following resolution, which was adopted:

RESOLVED, That in the opinion of this Society, laws so formed as to protect the people from the impositions of unqualified pretenders to the practice of Medicine and Surgery, would result in good, and further, that we believe that they could be so worded as to afford such protection; but we wholly disclaim any desire upon our part to have such laws on account of any benefit to us as medical practitioners.

Dr. A. B. Stuart offered the following preamble and resolution:

WHEREAS, Bidding or proposing for public or private business, especially where it renders the party liable to come in conflict with other members of the profession, has a tendency to lower the dignity of the profession, both in the estimation of its members, and in that of the public; therefore,

RESOLVED, That such bidding or proposing is, and shall be considered, unprofessional.

This resolution shall not be so construed as to apply to the acceptance of a position upon a stipulated salary.

The minutes do not clearly show what action was taken on this resolution other than that it was accepted and placed on file. The profession being then very much as it is now, it is likely that no further pressure was brought to bear on this chronically tender point.

As the meeting of February 1, 1870, in Saint Paul was the first at which a formal presidential address was given, it seems proper to quote Dr. Willey's address in full.

PRESIDENT'S ADDRESS

Gentlemen—

It is a requirement of our bylaws, and is both customary and proper, that such remarks shall be made by your executive officer, at the expiration of his term of office, as he may deem most conducive to the welfare and prosperity of the Society.

I do not propose a didactic essay, but simply desire to speak a few plain words, in the hope that our Association and its objects shall be steadily and earnestly sustained and persevered in, and that the good results which are already so apparent may be greatly augmented as the coming years pass before us.

Thus far, our meetings have been characterized by the utmost harmony—our number is rapidly increasing by the enrollment of good men from all sections of the state—and we may safely assert that the organization is already one of which, not only ourselves, but the citizens of Minnesota, may justly feel proud.

Physicians occupy the position of conservators of the public health—and, as health is the chiefest of all earthly blessings, those who by their skill contribute most to its preservation, and its rescue when in peril, are the greatest public benefactors.

Thus, as no communities are indifferent to the character and skill and ability of their medical advisers, we may rest assured that our efforts for mutual improvement in scientific attainments are silently appreciated and commended by all.

During the past year, old County Societies have renewed their vigor, and several new ones have been formed—these, as auxiliaries, will be henceforth pillars upon which the Society will securely rest.

While I fain would mention some which have worked very important results, yet it might appear invidious to others which have not done so well.

It is my duty, however, to recognize all transactions of Societies *officially* transmitted to me, and I therefore have to announce the following action of the Hennepin County Medical Society, duly attested by its able Secretary:

WHEREAS, Action of this body has been deemed necessary in order to prevent professional quackery in the matter of publishing surgical operations, etc., in the public journals:

RESOLVED, That any member of this Society who shall permit his name to appear in connection with a report of a surgical operation, or case of disease, in the public prints, or who shall furnish any secular journal with any such report for publication, shall be deemed guilty of gross violation of the Medical Code of Ethics, and of professional honor.

RESOLVED, That it shall be the duty of the Committee on Ethics to investigate each case, as it appears in print, and report the result to the Society at its next regular meeting; and the offender, if found guilty, shall be reprimanded by the President for the first offense, and summarily expelled for the second.

A true copy.

(Signed)
W. F. HUTCHINSON, M.D.
Secretary.

These are in strict accordance with the Code of Ethics of the American Medical Association, and I trust each County Society will adopt, and strictly enforce, similar judicious resolutions.

As the population of our state becomes less sparse, and our numbers increase, I trust that even the very remote counties will not be without well-organized, working societies.

As Minnesota is looked upon in this country and throughout Europe as a sort of sanitarium for many diseases, particularly those of the pulmonary organs, each Society should have its committee on climatology and epidemics, which should report annually to this Society, that statistics may be properly compiled and preserved.

I would further recommend that each member briefly record the name and type of every case of disease observed, so that at the close of each year, statistical information may be obtained of interest to the profession, and of vast importance toward a knowledge of the sanitary status of our state.

To ask the busy practitioner to record cases, as in hospital practice, is to ask what would rarely be performed; but the suggestion above implies no real labor, and its fulfillment will bring to each of you ample reward.

In this connection, I would respectfully suggest the appointment of a committee at this meeting to confer with our medical brethren in the Legislature, with a view to the preparation and passage of a bill providing for the registration of births, marriages and deaths. Connected with and under the supervision of the present able bureau of general statistics—now comprising agriculture, manufactures and population—the collection of *vital statistics*

would, to use in part the language of Dr. F. B. Hough, the able superintendent of the New York State Census, in 1855 and 1865, "form the basis of computations for life insurance, and present the elements of what is necessary to be known concerning the probabilities of life at different ages, the origin, range, and mutability of epidemics, and the influence of age, sex, locality and season upon disease."

The form of bill presented by Dr. Hough to the New York State Medical Society is an admirable one, and, with some modification for change of locality, would answer well the purpose.

All enlightened governments are actively alive to the immense importance of vital statistics, and Minnesota has never yet been backward in any work tending toward her social and political advancement.

At the last session of the Legislature, an act was passed with a view to the protection of the people from the evils of empiricism and quackery, and although I am informed by some of the members of that body that good has been accomplished in their respective neighborhoods, by summarily arresting the career of imposters, yet the law was a defective one in many respects, with no provision for its enforcement, and it has not met the expectations of its framers, or of the people.

That the principle involved is a correct one, admits of no doubt, but the application of legislative enactments in overthrowing the frightful evil has ever been a difficult one.

It has been suggested that this law, which is practically a dead letter, should be properly amended—also, that an act should be passed providing for a "State Board of Censors," to be appointed by the Governor, by and with the advice of the Senate, and, as in the admission of members of the other learned professions, make the *professional attainments and moral character* of the applicant the only tests for admission to practice in the state, without reference to any private opinions he may entertain.

All this is submitted to your better judgment for consideration, with the understanding that they are suggestions, not deliberate recommendations.

This is not "class legislation"—it is not for the benefit of the few against the many, but the very opposite—it is not for the benefit of the medical profession, as is so often falsely alleged—but *it aims at direct protection of the people against hurtful classes of men.*

Laws are enforced against those who, as thieves and assassins, despoil your property, or injure your persons—those who by false pretenses, and for their own base and selfish purposes, tamper with the health and lives of the afflicted. Such persons belong to a similar class of criminal offenders against public policy, and should be as promptly dealt with.

Steel said, in the Spectator, a century and a half ago: "There is hardly a man in the world, one would think, so ignorant as not to know that the quack-doctors who publish their great abilities are, to a man, impostors and murderers."

The public should know that all advertisements, circulars and certificates, calling attention to special branches of medical practice as inducements to patronage, stamp the authors at once as charlatans, and disqualify them from fellowship with honorable members of the profession.

A distinguished writer says: "The word is peopled by two classes of beings, who seem to be as cognate and necessary to each other as male and female.

"Charlatans and dupes exist by a mutual dependence.

"All bills which the former draw, the latter come forward at once and honor."

These quacks are not infrequently quite grave and reverend individuals, and exemplify the saying of Lord Bolingbroke, that "gravity is the essence of imposture," or of the humorist who said "The gravest beast was an ass—the gravest bird an owl—the gravest fish an oyster—and the gravest man a fool."

But this is of far more moment to the general community than to ourselves, as it is capable of demonstration that diseases are continually being created, as well as aggravated, by quacks and their remedies.

No man of self-respect, in any profession, will care how many practitioners center in his neighborhood, but will cheerfully welcome all of good standing—as it may be supposed the supply rarely exceeds the demand—yet no one of humane feelings can but deeply regret, when the community in which his lot is cast and in which he has a common interest at least, becomes the prey of cunning charlatans, who by smoothly worded promises, and specious practices, makes those who should be the subjects of the tenderest regard, and most skillful care—the sick and the suffering—the objects of spoliation and wanton experiment.

Enough of this. Addison says that, "Like the imperceptible insects which are discovered by the microscope, they cannot be made the subject of observation without being magnified."

The people being the source of political power, legislation is of course subservient to

popular sentiment and intelligence, and by educating the latter upon the foregoing points, the greater good, perhaps, may be obtained.

Medicine is essentially a practical science, and the merest tyro knows how brief has been the existence of systems based upon speculations and theories, instead of observation, analysis and induction.

While hobbies and dogmas and theories are to be avoided, it is well that each should strive to become proficient in one or more branches of our art, toward the study of which his inclination and mental habits lead him.

One must not only be well grounded in the elementary principles of medicine, but be above mediocrity in the practice of its several branches, before he can study special diseases with signal benefit—then, carrying out such study in an enlarged spirit, inclines to a better appreciation of disease in general.

Those of our medical brethren in the East, who are thus engaged, and whose names are as familiar as household words, are scarely less erudite in other branches of medicine.

In my intercourse with members during the past year, it has been in the highest degree gratifying to note the liberality with which they patronize journals, and other current and standard medical literature.

One cannot overestimate the value of medical pournals to the busy practitioner, particularly to him who is debarred from frequent fellowship with his brethren.*

There is no royal road to medicine, as there is none to heaven, or geometry, and it is only by careful observation, diligent reading and reflection, and the cautious application of deductions, that the physician becomes in time the scientific medical man.

A word upon a subject which justly claims no little attention. The almost criminal laxity with which examinations for life insurance are frequently made, is of incalculable wrong to the insurer and the insured. The examiner is not only the chosen, confidential adviser, but he holds the most important interests of his company, in his vicinity, under his control.

He should be alive to this great responsibility, and strive to become, not only a thorough diagnostician, but an expert in this particular sphere—he must not only be able readily to detect functional diseases and internal lesions, but he is appointed to a still higher task—he is to judge *prospectively* of the life of the applicant.

Goethe says: "Nature defies incompetency, but reveals its secrets to the competent, the truthful and the pure."

A few words more. Let us all remember that while we seek fame and fortune as proper objects of desire, yet that the practice of our profession should rest upon that philosophy which arises from "the noblest faculties of reason, and of the cardinal virtues of the soul."

Respecting our profession, we cannot but respect all fellow workers; and in our intercourse with each other, we should be full of that charity which is not strained, "but droppeth as the gentle rain from Heaven."

Especially should we assist and support our juniors.

Ordinarily, the lot of the young physician is tedious and toilsome, no matter how able and deserving he may be; to place obstacles in his upward progress to an honorable position and its compensations is cruel and unmanly; to cheer him on his professional way with kind words and still kinder actions is the part of the upright senior and fulfils the precept of the golden rule "Thy neighbor as thyself."

Our profession is not only governed by the code of laws of the American Medical Association, but it has a natural code of laws springing from a reciprocal system of feelings and sympathy pervading its members.

May this sympathy and fraternal spirit ever animate us—and may our profession ever be our study, our pride and our enthusiasm.

A special committee on the President's Address, submitted the following report, which was adopted:

The committee would respectfully report that they have given the suggestions of the address careful consideration, and advise the adoption of the following resolutions:

RESOLVED, That the Society reiterates the request made at the last annual meeting, to all members of the profession throughout the state, who have not already done so, to organize county societies.

RESOLVED, That said Societies be advised to make it incumbent upon their members to report annually the statistics of the diseases occurring in their practices, and that their Secretary report a summary of the same to this Society.

*See David Fairchild's article (to be published in a later issue).

We advise the adoption of a bill similar to that proposed by Dr. Hough to the New York State Medical Society, as in every way suited to the purpose of providing for the collection of vital statistics, and that with this recommendation, the matter be referred to our professional brethren in the Legislature.

Your committee, after serious deliberation, express the belief that laws regulating the practice of medicine, do not, and can not, reach the cause of the success of quackery among the people, but that that cause is to be found in the deficient knowledge on the part of the people in regard to the real ground upon which the practice of medicine rests, and that so long as that deficiency exists, quackery will flourish. If legislative action is to be had, it should be directed to the removal of that cause.

CHARLES N. HEWITT,
A. E. SENKLER,
C. HILL,
C. H. BOARDMAN.

Dr. Willey's recommendation in favor of an investigation of the climate of Minnesota and its relation to epidemics, a provision for vital statistics, a qualification for medical practice much as now employed, and his insistence on thorough fundamental preparation as preliminary to specialism in medicine show a desire for original investigation and an understanding of the essentials of medical practice quite equal to much more modern views on these subjects.

Dr. Wharton, for the committee appointed at the last annual meeting to prepare a Constitution and By-Laws, submitted a draft which after several amendments was adopted as follows:

CONSTITUTION
of the
MINNESOTA STATE MEDICAL SOCIETY

ARTICLE I

Section 1.—This Association shall be called the "MINNESOTA STATE MEDICAL SOCIETY," and shall be composed of members and honorary members.

Section 2.—There shall be an annual and a semi-annual meeting of the Society.

The annual meetings shall be held in the city of St. Paul, on the first Tuesday in February. The semi-annual meetings shall be held on the second Tuesday in June, the place to be determined by the Society at each annual meeting.

The object of the semi-annual meetings shall be more especially the promotion of professional culture and education.

Special meetings may be called by the President, upon the petition of ten members, twenty days' public notice being given previous to such meeting, in one or more of the daily papers published at St. Paul.

At all meetings fifteen members shall constitute a quorum.

ARTICLE II

Section 1. The Society shall constantly have in view:

First: The association of the profession for mutual recognition and fellowship.

Second: The maintenance of union, harmony and good government among its members, thereby promoting the character, interests, honor and usefulness of the profession.

Third: The cultivation and advancement of medical science and literature, and the elevation of the standard of professional education.

ARTICLE III

Section 1.—The members of this Society shall be regular practitioners of medicine and surgery in the State of Minnesota, who shall be elected by a vote of the majority, at any regular meeting, their eligibility having been previously reported upon by the Committee on Membership.

Section 2.—The officers of the county or district societies are required to report each year to the recording secretary of the state medical society, if auxiliary thereto, the names of all their members, to serve as a basis for the medical statistics of the state; and no physician

not in good standing in his own county or district society shall be admitted as a member of the state medical society.

ARTICLE IV

Section 1.—Honorary members shall only be admitted by a vote of two-thirds of the members present at a regular meeting, having first been recommended by the Committee on Membership.

ARTICLE V

Section 1.—This Society shall have the power to censure or expel any member convicted of violating its provisions, or who may be guilty of any act which may be considered derogatory to the honor of the medical profession; but a vote of four-fifths of the members present shall be requisite for the expulsion of a member, which vote shall be had in consequence of a report from the Committee on Ethics, and at the next regular meeting subsequent to such report.

ARTICLE VI

Section 1.—The officers of this Society shall be a president, three vice presidents, a recording secretary, a corresponding secretary, and a treasurer, all of whom shall be elected annually, upon the report of a nominating committee, at the regular annual meeting. They shall severally perform the duties assigned them in the By-Laws, as shall also the standing committees.

ARTICLE VII

Section 1.—The following standing committees shall be annually appointed by the president, and shall each consist of five members: 1st, an Executive Committee; 2nd, a Committee on Finance; 3rd, a Committee on Publication; 4th, a Committee on Ethics; 5th, a Committee on Medical Societies.

Section 2.—The President shall appoint at each annual meeting, five censors, who shall be known as the "Board of Censors." They shall perform such duties as are assigned them in the By-Laws, and in the manner there prescribed.

ARTICLE VIII

Section 1.—County or District Societies may become auxiliary to this Society, by transmitting a copy of their Constitution and By-Laws for examination and record, and electing delegates to the annual meeting of this Society.

Section 2.—No county or district medical society, auxiliary to this Society, shall, by censor or otherwise, grant diplomas, or confer any right to practice medicine or surgery.

ARTICLE IX

Section 1.—No part of this Constitution shall be repealed, annulled, altered or amended, except at a regular meeting subsequent to one at which a proposition to that effect may have been made in writing, and then only upon a vote of two-thirds of the members present.

BY-LAWS
of the
MINNESOTA STATE MEDICAL SOCIETY

ARTICLE I

Section 1.—The president shall preside at all meetings, enforce a due observance of the Constitution and By-Laws; see that all officers and members of committees perform their respective duties; appoint all committees not otherwise provided for; give the casting vote only; sign diplomas and all other official documents requiring his signature and perform such other duties as pertain to his office by usage and custom.

Section 2.—The vice presidents shall assist the president in the performance of his duties, and in his absence shall preside in order of rank.

Section 3.—The Recording Secretary shall keep the minutes of the proceedings of all meetings, notify officers of their election, sign diplomas, and certify to all official acts requiring the same; receive the signature and initiation fees of the newly elected members, and do such other business as shall be required or as the Society shall from time to time

direct. He shall notify each member when his name occurs on any of the committees, which have work to perform for the next meetings, within two weeks after adjournment.

The corresponding secretary shall attend to such duties as naturally pertain to his office.

Section 4.—The treasurer shall receive all moneys due the society and pay all bills audited and approved by the Finance Committee, and countersigned by the president, keeping correct account of the same, and making a full and detailed report at the annual meeting.

ARTICLE II

Section 1.—The Standing Committees shall keep regular minutes of their proceedings, and furnish an authenticated copy to be deposited with the recording secretary.

Section 2.—The Committee on Ethics shall investigate all complaints of breach of etiquette or violation of medical ethics, and it shall decide all questions of ethics submitted to it. If any member shall be charged in writing with any violation of the provisions of the Constitution or By-Laws, or with unprofessional conduct, a copy of such charges shall be furnished him, and himself and his accuser cited to appear, when the committee shall proceed to hear the case, reserving its decision to be reported to the Society, when its action may be affirmed by a vote of four-fifths of the members present.

Section 3.—The Committee on Finance shall superintend all the monetary affairs of the Society, inspect and audit all bills and the accounts of the treasurer, and make such an assessment, by a pro rata tax upon the members, as may be necessary for incidental expenses.

Section 4.—The Committee on Publication, of which the recording secretary and treasurer shall be members, shall prepare, publish and distribute such of the proceedings, transactions, and memoirs of the Society as may be selected for publication; it shall supervise and edit all papers presented to the Society and ordered to be printed and report its doings at each annual meeting.

Section 5.—The Executive Committee shall digest and prepare the business of each meeting, recommend plans for the promotion of the objects of the Society, and in all things protect and superintend its general interests.

Section 6.—The Committee on Medical Societies shall consider and report on the organization of such associations as may desire to become auxiliary to the State Medical Society, and generally take charge of this department, making at each annual meeting as complete a report as practicable.

Section 7.—It shall be the duty of the "Board of Censors" to examine all applicants for the diploma of this Society. Three censors shall constitute a quorum. They shall require satisfactory proof of the applicant that he has studied medicine with some physician and surgeon duly authorized to practice his profession, at least for three years; that he has attended at least one course of lectures in a school of medicine recognized by the American Medical Association; and that he has been in reputable practice for a period of not less than five years; and that he is of good moral character. They shall then proceed to examine him in the several branches of medicine and surgery, and if such examination is satisfactory, they shall give a certificate to that effect to the president or recording secretary of the State Medical Society.†

Section 8.—On the presentation of such certificate from the Board of Censors, the president and recording secretary shall be, and are hereby authorized, to grant to every such candidate qualified to practice medicine and surgery agreeably to law, in the name and under the seal of the Society—a diploma in the following wards, viz:

To all to whom these presents shall come or may in any wise concern: The president and members of the Minnesota State Medical Society send greeting:

WHEREAS (*Name and county of the candidate*) hath exhibited unto us satisfactory evidence that he hath studied medicine and surgery, for the time and in the manner directed by law, and hath, also, upon examination by our censors, given sufficient proofs of his proficiency in the healing art, and of his moral character: Therefore, by virtue

†The following items from the *Minneapolis Tribune* throw light on the significance of Sections 7 and 8: (*Minneapolis Tribune*, September 26, 1869): "A meeting of the Board of Censors of the Minnesota Medical Society will be held in Rochester on Thursday, the 30th of September, at the office of Dr. Mayo to examine parties not already legally authorized who may wish to receive authority to practice medicine." The subsequent papers make no reference to this meeting, but the following item is explanatory. (*Minneapolis Tribune*, October 1, 1869): "The Medical Profession—At the last session of the Legislature, a law was enacted requiring all practitioners of medicine on or before the first of October, to file with the clerk of the District Court of the county wherein they practice, a copy of their diplomas, or a certificate of some county or state medical society, and subjecting all who attempt to practice medicine without first complying with this law, to a heavy fine. During the past few days the doctors in this vicinity have been busy hunting up their diplomas and certificates and filing them with the clerk of the court. About thirty have already complied with the law, while a number have failed to come to time. There will be lively times if some of these doctors are made to pay their fines."

of the power vested in us by law, we do grant unto the same (*name of the candidate*) the privilege of practicing medicine and surgery in this state, together with all rights and immunities which usually appertain to physicians and surgeons.

In witness whereof we have granted this diploma, sealed with our seal, and certified by our president and secretary. (*Place and date.*)

Section 9.—Before receiving such diploma the candidate shall pay to the recording secretary the sum of fifty dollars, and sign the following declaration:

I, A-B, do solemnly declare that I will honestly, virtuously, and chastely conduct myself in the practice of medicine and surgery, with the privileges of exercising which profession I am now to be invested; and that I will with fidelity and honor do everything in my power for the benefit of the sick committed to my charge. Which said declaration, so signed, shall be filed by the secretary in the archives of the Society.

Section 10.—The censors shall report annually to the Society the number and names of the candidates examined by them during the year.

ARTICLE III

Section 1.—Any member vacating his membership shall thereby be divested of any right or title to any portion of the funds or other property of the Society.

Section 2.—Every member, on admission, shall pay the sum of three dollars, as an initiation fee, and sign the Constitution and By-Laws, nor shall he be entitled to the rights of membership until the same is done.

Section 3.—All vacancies shall be filled, ad interim, by the president.

Section 4.—These By-Laws may be suspended by a three-fourths vote, at any regular meeting, and they may be repealed or amended by a similar vote, notice of the same having been given, in writing, at a previous meeting.

Section 5.—Rules of order, and all questions arising upon the same, shall be determined by parliamentary usage.

ARTICLE IV

Section 1.—This Society adopts, as part of its regulations, the Code of Ethics of the American Medical Association.

Just preceding the close of the meeting, the following resolution, on motion of Dr. Davis, was adopted:

RESOLVED, That the thanks of this Society are due, and are hereby tendered to the President, Dr. Willey, for the valuable aid he has rendered in perfecting its organization, and for the impartial and dignified manner in which he has presided over its deliberations; also, to the Committee on Arrangements, and to the physicians of St. Paul, for their generous hospitality and fraternal kindness.

On motion the meeting adjourned.

(To be continued in March issue.)

President's Letter

INDUSTRIAL health and industrial medicine automatically at this time take the center of the stage. Industrial medicine includes industrial hygiene and sanitation, industrial surgery, occupational disease and industrial psychology. The war effort demands not only industrial expansion of a stupendous degree but dislocations of personnel which complicate the situation. Fortunately our State Board of Health in its continuous program has been not only on the alert but has been busy accomplishing things. Its various divisions have been farsighted and active. Last fall the Office of Civilian Defense called a conference of representatives of the State Medical Association, the State Dental and Veterinary Societies, the State Nurses Association, and the State Board of Health to evaluate the status of medical health in defense. Later, the Sanitary conference gave over most of its program to medical health in civilian defense. In general, it seemed that the most logical procedure was the expansion of certain activities—nutrition, vaccination and immunization, first aid and safety measures, child health and industrial health—these objectives to be furthered in coöperation and coördination with all existing agencies in the state interested in these various fields. It was obvious that industrial health was of immediate concern. Although Minnesota is not ordinarily thought of as an industrial state, nevertheless in actual number of workers it stands in the upper third among the states.

A three-day Congress on Industrial Health under the sponsorship of the Council on Industrial Health of the American Medical Association has just been held in Chicago. Its reports and papers, to be published in the *Journal of the American Medical Association*, will be especially interesting. It was brought out very clearly that special training is necessary to supply industry with qualified physicians, and that at present there is so serious a lack of qualified physicians that urgent action is necessary. A twenty-hour course in industrial medicine and occupational disease in the senior year was regarded as essential and a six weeks' service in a plant hospital during internship, desirable where possible. Physicians who wish to enter this field as a specialty require graduate courses and longer internship. Schools of industrial hygiene and health are needed as we formerly needed schools of public health and preventive medicine. The medical needs of an industrial age are not being supplied.

In the meantime what can each physician do and what can the State Association do to bridge the gap? The knowledge of the practicing physician in methods of resuscitation and treatment of wounds, burns and fractures is a basis for industrial surgery and every effort should be made to keep informed along these lines. Knowledge can be gained by visiting the emergency hospitals of industrial plants—a knowledge which may be much more interesting and valuable to physicians in general practice than that obtained at famous clinics. A knowledge of industrial hygiene and of occupational disease is quite another matter and probably can be learned best in postgraduate courses or by actual experience in the plant. However, we can expand our histories to include a more careful analysis of occupation and environment in relation to the patients' illnesses, and keep careful records. In Iowa, institutes of industrial medicine have been held in several cities of the state by the State Health Commission and the State Medical Association. Other State Associations have tried other methods of instruction. Medico-legal problems involving the liability of the employer and the relation of the attending physician to the employe in the matter of compensable disabilities are of concern to all practitioners. Is our existing legislation up to date and fair to employer and employe?

Our Committee on Industrial Health under Dr. J. L. McLeod was very well represented at the Congress on Industrial Health; the members of the Committee have these matters under consideration and I am sure you will hear from them. Dr. L. W. Foker, director of the Minnesota Division of Industrial Health, is conducting investigations of the situation in various industries of the state, and is offering technical, medical, and engineering service to assist industry in the control of industrial hazards. He has prepared a report blank of industrial or occupational disease which will be distributed to all physicians. The new section on Industrial Health, in MINNESOTA MEDICINE, will keep us informed.

World War I was responsible for the promotion of public health and preventive medicine and also for the early phases of progress in industrial health. World War II doubtless will prove a great impetus to industrial hygiene and industrial medicine.

H. Z. Giffin

President, Minnesota State Medical Association

EDITORIAL

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Annual Subscription—$3.00 — Single Copies—$0.40
Foreign and Canadian Subscriptions—$3.50

Address all communications to Minnesota Medicine, 2642 University Avenue, Saint Paul, or National Bldg., Minneapolis. Telephone Nestor 2641.

BUSINESS MANAGER
J. R. BRUCE

Volume 25 — FEBRUARY, 1942 — Number 2

INTERNATIONAL FORCE OR ORDER?

SOME individuals and some nations believe that war is a biological necessity in the working out of the survival of the fittest. In the philosophy of the Nazis the nation entitled to dominate is the one best able to invent and construct weapons of destruction and the energy to subjugate its neighbors by force and treachery. Peaceful relations with neighbors and respect for treaty obligations receive no consideration. The law of the jungle is the only law the Nazis know.

Japan has shown herself an able imitator of western civilization. She has thoroughly adopted the philosophy of the Nazi and applied it since her first invasion of China. No doubt the Japanese have been viewing with alarm the marvelous development, both educational and industrial, going on in China the past fifteen or twenty years. To a nation like Japan that considers force the determining factor in international relations, a China developed along the lines of western civilization with modern weapons of war was a threat to be prevented, if possible. Hence, the destructive war which has been going on over four years.

The Japanese have undoubtedly been pressed for room. As brought out in a recent Bulletin of the Metropolitan Life Insurance Company,* the small island of Japan, no larger than the state of California, has a population of 490 to the square mile. Colonizing efforts on the part of the Japanese government to encourage emigration have not been very successful. The island of Japan is not sufficient in size or fertility to produce food stuffs for so many mouths and she must depend on importation of food and exportation of manufactured goods. Japan's position is much like England's. However, in England the population is more dense than in Japan, there being 700 inhabitants to the square mile. In Belgium, too, the figure is 706 to the square mile. These two countries have not attempted to enslave their neighbors, but have become industrial nations, have imported the additional needed food and have attempted to live in peaceful relations with their neighbors.

The population of Japan has been increasing, according to the Bulletin, at the rate of better than 1 per cent per year, until the war began. Each year some two million Japs have been added to the population of Japan—nearly as many as our two and a quarter million. This, however, does not satisfy the Japanese government which is carrying on active plans like the German and Italian governments to encourage greater increase in population. The excuse for recent encroachment on her neighbors is the teeming population in Japan, but the Japanese government is incongruously doing everything possible to increase that excuse.

One fact that has been overlooked in initiating

*Population Problems in Japan. Statistical Bulletin Metropolitan Life Insurance Company, 22:1, (Dec.) 1941.

the present struggle is that no one nation or group of nations so far allied can enslave the rest of the world permanently. The love of freedom and national patriotism are too strong factors to be long stifled. After this war is over the world will need an international organization with a police force behind it to assure the independence of nations, large and small, and to enable them to work out their destinies without fear of destruction by their neighbors.

POLIOMYELITIS, AN ALIMENTARY INFECTION

A RATHER complete résumé of the addition to our knowledge of poliomyelitis since 1934 appeared in the Progress section of the *American Journal of Medical Sciences* for December, 1941. Although admittedly little has been added in these recent years, and much remains to be learned before the infection can be prevented, certain facts have been fairly well established.

It is generally accepted that poliomyelitis is due to a filterable virus which can pass through the finest filters and membranes known. The virus has sufficiently distinct properties to permit its identification with as much certainty as it is possible to identify any well-known bacteria.

According to Sabin, the disease is contracted through the alimentary canal and multiplication occurs in the walls of the pharynx and small intestines. Elimination occurs in the feces. Whether the multiplication occurs in the nerve cells of the walls of the alimentary tract or in the non-nervous tissues is not known, but it is believed that the virus invades the central nervous system by two pathways, one leading to the medulla by way of the cranial nerves supplying the upper part of the tract or by the vagus, and the other by the way of the sympathetic fibers from the intestines to the spinal cord.

Extension from the pharynx accounts for bulbar involvement and signs, and extension from the intestinal tract results in affected trunk or extremities. In abortive attacks the process is checked before sufficient anterior horn cells are destroyed to produce paralytic symptoms.

This is a different conception from that formerly held and still adhered to by some that the infection reaches the central nervous system by means of the olfactory tract. Absence of the virus in the olfactory bulbs contraindicates the nasal tract as the pathway of infection.

This newer conception of the location of the infection in the alimentary tract indicates that preventive measures should be shifted from nasal sprays which as a matter of experience have not proved effective to prevention of infection from contaminated food and drink. Insect vectors in the contamination of food become a possibility. Swimming in pools possibly contaminated by sewage should be avoided.

In the past there has been no definite or generally accepted idea of the manner in which poliomyelitis is transmitted. Alimentary tract transmission perhaps best explains the slight and scattered incidence commonly in evidence with this disease and indicates the likelihood of person-to-person contagion from one with an acute or abortive infection or from one who is a carrier.

THE CENTENARY OF THE FIRST USE OF ETHER ANESTHESIA IN A SURGICAL OPERATION

MARCH 30, 1942, marks the centenary of the first use of ether anesthesia in a surgical operation. It is fitting that the anniversary of this important event should not go unnoticed.

Humphrey Davy in 1800 suggested that nitrous oxide might be capable of destroying physical pain. Michael Faraday in 1818 wrote concerning the anesthetic properties of ether. Chloroform was discovered in 1831 by Guthrie, who called it by the rather startling name of "sweet whiskey." John D. Godman pointed out twenty years before Dr. Long that inhalation of ether vapor could produce anesthesia.

"Laughing gas" parties and "ether frolics" were a popular form of amusement in the early years of the nineteenth century. Among those who indulged in these ether frolics was Dr. Crawford Williamson Long, a graduate of the University of Pennsylvania, who was practicing in his native State of Georgia. In some of the parties held in his office, he noted that he and others who inhaled ether staggered, fell, but felt no pain from their bruises.

One of his acquaintances, James M. Venables, had frequently inhaled ether for its exhilirating effect. He had two tumors on the back of his neck and wanted Long to cut them off. The

operation took place on March 30, 1842, in Long's office. The doctor poured some ether on a towel and the patient inhaled the ether. Long excised the tumor and when Venables awoke, he did not believe that the mass had been removed until it was shown to him. Long wrote in his ledger: "James Venables, 1842, ether and excision tumors $2.00."

Long wrote his first article on the subject of anesthesia in December, 1849, five years after Wells' demonstration of the anesthetic value of nitrous oxide, and three years after Morton's use of ether anesthesia in Boston. There is no question but that Morton, Wells and Jackson should be given credit for advancing the use of anesthesia. An important attribute of a discoverer is that he be able to recognize and advance his discovery, which, sad to say, Long did not do. However, it is to the honor of Long's memory that the trail of greed, scandal and tragedy that followed Morton, Wells and Jackson did not follow him.

The question of priority in any medical discovery is always uncertain and distasteful. No claim has been made that Long was the actual discoverer of ether anesthesia. However, he was the first to make a successful application thereof in surgery. It is for this that we honor his memory today.

CHARLES E. REA.

RECOMMENDATIONS TO ALL PHYSICIANS WITH REFERENCE TO THE NATIONAL EMERGENCY

I. Medical Students

A. All students holding letters of acceptance from the Dean for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in Class II-A as a medical student. If local boards classify such students in Class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the Board of Appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the State Director and if necessary to the National Director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissions are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools, who have not done so, should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H.V. (P) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the Corps Area Surgeon of the Corps Area in which the applicant resides and applications for commission in the Navy should be made to the Commandant of the Naval District in which the applicant resides. Medical R.O.T.C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, upon graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Acts. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least 12 months of internship.

II. Recent Graduates

Upon successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H.V. (P), U. S. Navy Reserve, should make immediate application to the Commandant of his Naval District for commission as Lieutenant (J.G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieutenant (J.G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. Twelve Months Interns

All interns should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as Lieutenant (J.G.), United States Navy or Navy Reserve. Upon completion of twelve months internship, except in rare instances where the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service Acts.

IV. Hospital Staff Members

Interns with more than twelve months of internship, assistant residents, fellows, residents, junior staff members, and staff members under the age of forty-five, fall within the provisions of the Selective Service Acts which provide that all men between the ages of twenty and forty-five are liable for military service. All such men holding Army commissions are subject to call at any time and only *temporary deferment* is possible, upon approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only upon approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the Executive Order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial, and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available

to the Army, Navy, governmental, industrial, or civil agencies requiring their services for the duration of the war.

V. All Physicians Under Forty-five

All male physicians in this category are liable for military service and those who do not hold commissions are subject to induction under the Selective Service Acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are (a) over forty-five, (b) physicians under forty-five who are physically disqualified for military service, (c) women physicians, and (d) instructors and those engaged in research who do not possess an M.D. degree whose utilization would make available a physician for military service.

Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be dislocated for the duration of the national emergency.

VI. All Physicians Over Forty-five

All physicians over forty-five will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those Agencies.

The maximal age for original appointment in the Army of the United States is fifty-five. The maximal age for original appointment in the Naval Reserve is fifty years of age.

* * *

All inquiries concerning The Procurement and Assignment Service should be sent to The Executive Officer, 5654 Social Security Building, 4th and Independence Avenues, S.W., Washington, D. C., and not to individual members of the Directing Board or of committees thereof.

* * *

EDITOR'S NOTE: The above explicit statement of regulations affecting medical students and physicians, has been prepared by the Procurement and Assignment Service and should serve to answer numerous questions which have arisen the past few months.

In Memoriam

John Hultgren Bong

John Hultgren Bong was born in Stockholm, Sweden, the son of Rev. and Mrs. John Bong, July 25, 1872. After the death of his parents he came to America to live with an aunt at Carlton, Minnesota, where he attended high school. He attended Valparaiso University, Valparaiso, Indiana, the University of Minnesota Medical School for three years, and completed his studies at Hamline Medical School, from which he was graduated in 1897. He practiced in Minneapolis until December, 1898, when he located in Jasper, Minnesota.

In 1899 Dr. Bong married Louise L. Johnson, the local druggist. She was the widow of Dr. M. Johnson, a pioneer physician.

He remained in Jaspar until 1907 when he went to Chicago for postgraduate study. He remained in Chicago for two years and then located in Reno, Nevada, where he specialized in the treatment of eye, ear, nose and throat. In 1911 he returned to Jasper and resumed practice, remaining until the time of his death, December 13, 1941.

Dr. Bong was in good health up to one week before his death, at which time he contracted an infection in the arm. He was taken to Ashton Memorial Hospital where he died.

In the medical field Dr. Bong held the position of health officer and served as examiner for many insurance companies. He served as mayor of Jasper for over twenty-five years. He was a member of the Southwestern Minnesota Medical Society, the Minnesota State and American Medical Association. He was a member of many fraternal organizations, among them St. Elmo Masonic lodge where he served as Worthy Master, Triune Chapter, Pipestone Commandary, and Osman Temple of the Shrine at Saint Paul, Minnesota. The Masonic lodge had charge of the services which were held in the High School Auditorium December 19, 1941, with burial at Jasper. Dr. Bong is survived by one son, Dr. J. Norman Bong, a dentist of Minneapolis, and his second wife, Emma, whom he married in 1926. Louise Bong, his first wife, died in 1924.

Stephen B. Haessly

Dr. Stephen B. Haessly of Faribault died at St. Mary's Hospital in Rochester, January 11, 1942, following a six weeks' illness.

Dr. Haessly was born December 25, 1875, at Campbellsport, Wisconsin. He received his medical training at the College of Physicians and Surgeons in Chicago, where he graduated in 1904.

Dr. Haessly began practice at Cannon Falls in 1904 and remained there until 1909 when he moved to Red Wing. In 1912, he became associated with Dr. C. A. Traeger in Faribault in the operation of the Central Clinic. His practice was limited to disease of the eye, ear, nose and throat.

Dr. Haessly was a member of the Board of the Tuberculosis Sanatorium at Mineral Springs and was a past president of the staff of St. Lucas Hospital in Faribault. He had been prominent in medical and civic activities in Faribault for thirty years. In May, 1941, he was elected second vice president of the Minnesota State Medical Association. He was a member of the Rice County Medical Society, the Minnesota State and American Medical Associations.

Dr. Haessly is survived by his widow and two sons, Stuart of Minneapolis, and Burdette, now a lieutenant in service at Fort Lewis.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

STATE PROCUREMENT COMMITTEE

DR. W. F. BRAASCH of Rochester has been appointed chairman of the Minnesota Committee which will coöperate with the Procurement and Assignment Service.

The three-fold functions of this committee will be:

1. To secure enrollment of all physicians, beginning with those under 45 who might be available for military service, with the Procurement and Assignment Service.

2. To provide needed information to the Procurement and Assignment Service in regard to qualifications and professional standing of individual physicians in the state.

3. To determine what physicians are rendering services in their present positions which are essential to the public health and welfare and for whom it would be impossible to secure satisfactory substitutes.

Serving on the Committee with Dr. Braasch are the following physicians: Drs. A. N. Collins, Duluth; L. E. Daugherty, Saint Paul; D. A. MacDonald, Minneapolis; G. L. Gosslee, Moorhead; J. A. Thabes, Sr., Brainerd; R. C. Hunt, Fairmont.

PROCUREMENT PROGRAM

Confusion and misunderstanding surrounded early announcements and instructions from the Procurement and Assignment Service.

These misunderstandings have now been ironed out and an integrated military program for all medical men has been worked out in the form of recommendations to all physicians with reference to the national emergency by the board and its executive officer, Major Sam F. Seeley.

Here are the recommendations in abbreviated form:

For Students

1. All students holding letters of acceptance for admission to medical colleges, as well as all freshmen and sophomores in good standing, should present letters to that effect to local boards of the Selective Service System for classification in Class II-A. If, in spite of the letters, the boards classify them in I-A, they should immediately notify their deans and if necessary appeal, first to the Board of Appeals, then to the state and national directors of Selective Service and, finally, through the regular routine provided for the purpose to the President.

2. All junior and senior students in good standing should apply immediately for commissions in the Army or Navy to the Corps Area Surgeon or to the Commandant of the Navy district in which the applicant resides. They will be commissioned as Second Lieutenants of the Medical Administrative Corps of the Army or as Ensigns in the United States Navy Reserve, according to their own choice. While they hold such commissions they will not be subject to induction under the Selective Service Act, and will be deferred until they have completed their education and twelve months of internship. Medical R.O.T.C. students should continue as before with a view to obtaining commissions as First Lieutenants in the Medical Corps upon graduation. Juniors and seniors who are disqualified physically are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignments.

For Interns

3. Recent graduates and interns who hold commissions as Second Lieutenants should immediately apply to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenants, and Ensigns should apply to the Commandants of their Naval Districts for commissions as Lieutenants in the Navy Medical Corps Reserve or to the Bureau of Medicine and Surgery, Navy Department, Washington, for commissions as Lieutenants in the regular

Medical Corps of the United States Navy. Those who fail to make their applications run the risk of being inducted into service as enlisted men.

4. Interns, residents, fellows and junior staff members up to the age of 45 are subject to call. If they hold commissions only temporary deferment is possible if they can show they are temporarily indispensable. If they do not hold commissions they should enroll at once with the Procurement and Assignment Service which is charged by the president with proper distribution of medical personnel for military, governmental, industrial and civil agencies of the entire country. If they are not established as essential in their present capacities, they will be certified as available to appropriate agencies for the duration of the war.

For Physicians Under Forty-five

5. All male physicians under forty-five are now liable for service and those who do not hold commissions are subject to induction under the Selective Service Act. All will be asked to enroll at an early date with the Procurement and Assignment Service, and there they will be certified for positions commensurate with their professional training and experience and assigned in accordance with requisitions made by military, governmental, industrial or civil agencies. Wherever possible these men should make provisions for filling their present positions by men over forty-five or by men who are physically disqualified for military service or by women physicians, instructors or in some cases, by research workers who do not possess M.D. degrees but who could make available a physician for military service.

6. All physicians over forty-five will be asked to enroll with the Service at an early date. Those who are available may be asked to serve in military, governmental, industrial or civil agencies at a later date.

NOTE: *The form for enrollment with the Procurement Service published by "The Journal of the American Medical Association" to all members last month has been withdrawn. A new form to replace it will be ready shortly for publication and distribution.*

Twenty-one—Thirty-five

It should be understood that the Procurement Service is not likely to be in operation in time to aid physicians from twenty-one to thirty-five (the original draft ages). These men are now being called for induction under the Selective Service Act as rapidly as possible. All who have not already applied for commissions are likely to be inducted as enlisted men unless their local draft boards are willing to defer them pending an application, after they are called, for commission. Many draft boards refuse to grant deferments for commission unless the applicant has already applied before his number was called.

NOW THERE ARE NINE

The famous four freedoms became nine freedoms in the recommendations recently transmitted by the President to Congress for postwar America. The nine were drawn up by the National Resources and Planning Board, the President said, and among them, as was to be expected, was "the right to adequate food, clothing, shelter and medical care."

As a matter of fact, there is every reason to believe that plans are already formulated in Washington for a full-dress government medical service as an expansion of the Social Security program whenever Congress and the times seem ripe for it.

More Government Participation Likely

In his message on expansion of Social Security the President mentioned hospitalization especially, as an objective to be sought in changing Social Security at this time. Informed officials appear to doubt that Congress will act on this recommendation soon. But the civilian dislocation and hardship — greater probably than anyone foresees now — that will follow in the wake of the acute war emergency will inevitably call for greater and greater government participation in every department of life.

That has been the course of history in other countries and there is little reason to believe that we shall escape it here.

British Plans

In Britain, for example, a commission representing many elements in official life including, of course, the British Medical Association, is even now working on a plan for wartime and postwartime expansion of their system of panel practice. There is much talk among planners of scrapping the entire system and putting medi-

cine, like the Civil Service, completely under control of the state. The doctors appear to prefer extension of the present system and to fear for patient-physician relationships under a civil service of medicine. But nobody, not even the B.M.A., appears to blench at the thought of State Medicine.

How far the trend will go in America depends, of course, upon how actively American elements opposed to paternalism, fight it and also upon how far the private system can be shown to have failed.

For Free Enterprise

It is ironic, however, that one of the nine freedoms proposed by the National Planning Board should hold a serious threat to free medical service; that this right which appears in the published list as No. 3 should be followed in position No. 5 by the right "to live in a system of free enterprise."

Perhaps the most ironic item of all the nine is the last, which is "the right to rest, recreation and *adventure*." Does the Planning Board envision an Office of Adventure and a young American so bound around by its rights and freedoms and benefits that adventure will be dead and only a wise and benevolent government can be relied upon to provide romance for its young?

Anyway, here they are as quoted in the newspapers:

1. The right to work.

2. The right to fair pay, adequate to command the necessities and amenities of life.

3. The right to adequate food, clothing, shelter and medical care.

4. The right to security, with freedom from fear of old age, want, dependency, sickness, unemployment and accident.

5. The right to live in a system of free enterprise.

6. The right to come and go, to speak or to be silent, free from the spyings of secret political police.

7. The right to equality before the law.

8. The right to education.

9. The right to rest, recreation, and adventure.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Julian F. Dubois, M.D., Secretary

Renville County Mail Carrier Convicted of Criminal Abortion

Re State of Minnesota vs. Fred Wells.

On December 12, 1941, a jury in the District Court of Renville County, Minnesota, returned a verdict of guilty against Fred Wells, sixty-four years of age, the defendant being charged with the crime of abortion. On December 16, 1941, Wells was sentenced by the Honorable Harold Baker, District Judge, to a term of not to exceed two years at hard labor at the State Prison at Stillwater.

Wells, who for more than twenty-five years had been a rural mail carrier, resided at Buffalo Lake, Minnesota. He was arrested on October 13, 1941, following the filing of a complaint against him by Mr. Russell L. Frazee, County Attorney of Renville County. The defendant demanded a preliminary hearing which was held on October 29, 1941, before Justice of the Peace George H. Jacobson at Olivia, Minnesota. At the conclusion of the hearing the defendant was held to the District Court for trial under bond of $2,000.00. The bond was not furnished and the defendant was remanded to jail. On November 12, 1941, Mr. Frazee filed an information against the defendant charging that on or about January 1, 1940, the defendant performed a criminal abortion on a twenty-four-year-old unmarried girl. The defendant entered a plea of not guilty, and on December 8, 1941, a jury was impanelled and the case proceeded to trial.

Evidence was introduced showing that the defendant, who had no medical education of any kind, attempted to induce a criminal abortion by the use of a small metal can. There was also evidence that the defendant had performed a previous abortion on the same girl at a summer cabin in Stearns County. Before being sentenced, the defendant stated to the Court that he was born at Chippewa Falls, Wisconsin, and had completed the fifth grade in school.

The Minnesota State Board of Medical Examiners wishes to commend Mr. Frazee for the energetic and thorough manner in which he conducted the investigation in this case. These cases are most difficult to try, and the fact that the case was brought to a successful conclusion is a tribute to the able manner in which it was tried by Mr. Frazee.

RESEARCH ON GERM POISONS BRINGS $1000 AWARD

Studies of the chemical nature of the poisons produced by diphtheria and scarlet fever germs won for Dr. Alwin M. Pappenheimer, Jr., of New York University College of Medicine, the $1,000 Eli Lilly and Company Research Award in Bacteriology and Immunology, given at the meeting of the Society of American Bacteriologists in Baltimore.

Larger quantities of pure material for making toxoid to protect children against diphtheria is one result of the type of studies Dr. Pappenheimer has made.—*Science News Letter*, January 10, 1942.

INDUSTRIAL HEALTH

PROGRAM FOR MINNESOTA

Several members of our committee attended the Fourth Annual Congress on Industrial Health in Chicago, January 12 to 14, 1942. The meetings developed the seriousness of our situation as a nation at the moment and stressed the vital importance of the work done by medicine in keeping the production lines running at full capacity twenty-four hours per day. The defense situation has made necessary many adjustments and changes in the general attitude of the medical profession, toward the health of the worker. Dr. Sam F. Seeley, Executive Officer, Procurement and Assignment Service, pointed out to us that the emergency is much greater than we in the middle west realize. He stated that the army must and will call for several thousand more doctors in all departments for use in army medical service. The biggest call will be for men between 35 and 45 although men up to 60 will be called as needed. All of us must be ready. No one can assume the attitude that he is indispensable where he is should orders call for him elsewhere in the service of his country.

In addition to the direct army requirements, medicine has the tremendous responsibility of keeping up the health of the workers in all defense projects. The enormity of this problem has not yet been brought home to the general public, because even the medical man who should understand it has not seriously considered his responsibility. Defense activities now include every worker in the nation. Even the farmer is on the defense line.

Your committee has consulted informally with Dr. Giffin, and has arrived at the following conclusions respecting work to be encouraged this year. The following specific ideas will be considered and developed:

1. A thorough study of occupational disease in Minnesota. Each of us is about to receive from the State Board of Health special forms to be filled out on all cases of disease which may be associated with a man's occupation so that we may get definite information as to the nature and extent of this problem in Minnesota. We expect your coöperation in this matter.

2. Our committee will contact and work with other groups which have similar interests. Such groups as the safety council, nurses committees, dental committees, and many others will be approached for the purpose of statewide industrial health promotion.

3. It is increasingly evident that all medical schools must give instructions along industrial health lines. With this thought in mind your committee will give consideration to contacting the University in behalf of a definite course of instruction, covering this new medical responsibility. It has been shown that industry has not been able to find medical men who are trained in industrial practice. To correct this trouble special training must be developed.

J. LAWRENCE MCLEOD

NOTES FROM THE CHICAGO MEETING

Physiologist A. C. Ivy of Northwestern University cautioned against the seven-day week with long hours in our urgent war industries because lowered productivity may be the result. The British have found a fifty-six-hour week for men and a forty-eight-hour week for women gives their maximum output. Longer hours may be harmless if work is not heavy and physical fitness is maintained. Emotional strain, staleness, rest periods, working habits, economic factors, vacations and one day's rest in seven, must all be considered.

* * *

Lack of industrial training opportunities in our medical schools was regarded as serious by a score of men well known in the industrial field. Every recognized medical school with any reasonable material available for industrial teaching was urged to take steps toward correction of this deficiency. (The University of Minnesota is surrounded by industries of 500 or more employes which could readily become the source of clinical material. War demands on personnel may prevent development of these possibilities until after World War II.)

* * *

Health education for industrial workers was discussed by Dr. Everett D. Bristol. He stressed simplicity, clarity in all information presented through articles in newspapers, in motion pictures, payroll inserts, posters, displays and on the radio. Best results are obtained, he said, by direct health instruction to small groups and by repetition.

* * *

Ear plugs made of vaseline and cotton or commercially made plugs are valuable for civilians subjected to bombing raids and for airplane mechanics or pilots, as well as for workers subjected to any other excessive noise. The noise of an airplane motor striking the eardrums can be reduced with vaseline-cotton plugs to the volume of a busy street noise.

Heat sickness was also discussed.*

*A page on prevention and management of heat sickness in an industrial plant will appear here before our hot weather begins.

REPORTS and ANNOUNCEMENTS

MEDICAL BROADCASTS FOR FEBRUARY

The Minnesota State Medical Association broadcasts weekly at 10:45 o'clock every Saturday morning over Station WCCO, Minneapolis, Station WLB, University of Minnesota, and KDAL, Duluth.

Speaker: William A. O'Brien, M.D., Director of Postgraduate Medical Education, Medical School, University of Minnesota.

February 7—Hemorrhage and Shock
February 14—First Aid in Fractures
February 21—Treatment of Wounds
February 28—Injuries of Jaw and Teeth

AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS

The American Association of Industrial Physicians and Surgeons, and the American Industrial Hygiene Association will hold their joint Annual Convention in Cincinnati from April 13 to 17, 1942. A program is in preparation in which important medical and hygienic problems associated with the present huge task of American industry will be presented and discussed in clinics, lectures, symposia, and scientific exhibits. The central purpose of the meeting will be to provide a five-day institute for the interchange and dissemination of information on new problems as well as for the consideration of up-to-date methods of dealing with those that are well known. The industrial physicians have taken responsibility for the program of the first two and one-half days and the hygienists for the remainder of the five days, but most of the subjects chosen for discussion will be of interest not only to physicians, but equally so to industrial engineers, and executives.

AMERICAN COLLEGE OF SURGEONS

Because of the war, the thirty-second annual Clinical Congress of the American College of Surgeons will be held in Chicago, October 19 to 23, instead of in Los Angeles as originally planned. Headquarters will be at the Stevens Hotel. The twenty-fifth annual Hospital Standardization Conference sponsored by the College will be held simultaneously. The programs of both meetings will be based chiefly on wartime activities as they affect surgeons and hospital personnel in military and civilian service.

LABORATORY WORK

In accordance with the recommendations and agreements of the State Serological Committee (syphilologists and clinical pathologists), a plan for the interlaboratory checking of blood specimens with serodiagnostic tests for syphilis has been adopted. This procedure has been conducted during the past two years and has proved to be of benefit to participating laboratories in improving the efficiency of such work.

It was agreed that the Division of Preventable Diseases, Minnesota Department of Health, should assist by supplying blood specimens from a carefully selected group of syphilitic donors to those laboratories which do not have available such specimens for testing. It was also agreed that a member of the Laboratory Staff of the Division should visit the laboratories to discuss problems arising in relation to the work and to give advice and assistance as desired. Workers in other laboratories are cordially invited to visit the Division of Preventable Disease Laboratories for the purpose of observation and study of methods used. Blood specimens may be sent by the participating laboratories for checking through special study. Many of the laboratories in the state are taking part in this study. An effort has been made to contact all the laboratories which employ one or more serodiagnostic tests for syphilis in the case of donors or patients or both; however, it is probable that there are some which have not been located.

Further information regarding participation in these studies may be obtained by writing to the Division of Preventable Diseases, Minnesota Department of Health, University Campus, Minneapolis.

—A. J. CHESLEY,
Executive Officer

JOHN W. BELL LECTURE

Dr. William H. Feldman, a member of the Staff of the Institute of Experimental Medicine, of the Mayo Foundation, graduate school, University of Minnesota, will deliver the Eighth Annual John W. Bell Tuberculosis Lecture to the Hennepin County Medical Society on February 2, at 8:00 p.m., in the Medical Society Rooms, Medical Arts Building. The Lecture is sponsored by the Hennepin County Tuberculosis Association. Dr. Feldman's subject will be "Chemotherapy of Experimental Tuberculosis."

Members of the Committee on Arrangements in behalf of the Lecture are: Dr. H. S. Diehl, Chairman of the Committee, Dr. Stephen H. Baxter, ex officio, President of the Hennepin County Tuberculosis Association, Dr. E. J. Huenekens, President of the Hennepin County Medical Society, Dr. F. E. Harrington, and Dr. M. J. Shapiro.

MEDICAL COURSE AT MINNESOTA ACCELERATED

Acceleration of the medical course at the University of Minnesota so that a student will graduate from the Medical School in three calendar years after his admission is one of the several changes adopted by the Medical School with the approval of the Board of Regents.

The acceleration will be accomplished by starting the

next class at the beginning of the summer session and by omitting summer vacations.

Increasing the enrollment in the Freshman Class to 125 is another major change.

These two actions will result in making available to the armed forces an increased number of physicians, and will make them available three to twelve months earlier than if the present schedule were continued. The accelerated curriculum and increased enrollment will be discontinued at the end of the war.

Likewise, the executive faculty has also decided to:

Discontinue comprehensive examinations during the war. Under the present system of comprehensive examinations a student who fails to pass them in the spring may take them again in the fall and, if he passes, go on without loss of time. Elimination of vacations would make it necessary for a student who failed in his examinations to wait at least nine months before going on with the work of the next year. For that reason they are being replaced by course examinations.

Install a new Junior-Senior curriculum which spreads the lectures ordinarily concentrated in the Junior year and the clinical work ordinarily concentrated during the Senior year, more evenly over both years. This is intended to be permanent.

PROTEIN SEMINARS AT UNIVERSITY OF MINNESOTA

The Department of Physiology, University of Minnesota Medical School, has organized a series of twenty seminars on the Structure and Behavior of the Proteins. Experts from numerous departments within the University and several from other institutions are leading the discussions.

The increasing importance of knowledge about proteins in the virus, enzyme and blood protein fields has made this seminar series important and well attended by the staff members and graduate students of the University. The meetings are held in Room 15, Medical Sciences Building. The remaining Seminar topics follow:

February 5—"Double Refraction in Proteins"—Dr. W. Heller
February 19—"X-Ray Diffraction Studies in Crystalline Proteins"—Dr. L. Fankuchen
February 26—"X-Ray Diffraction Studies in Virus Proteins"—Dr. L. Fankuchen
March 5—"Fundamental Studies of Allergens"—Prof. H. A. Abramson of Columbia University, New York City
March 12—"Virus Protein Studies"—Professor M. H. Roepke
March 19—"Plant Protein Studies"—Professor R. A. Gortner
March 26—"Interaction of Proteins in Solution and at Surfaces"—Professor L. S. Moyer

MINNESOTA PATHOLOGICAL SOCIETY

The program for the February meeting of the Minnesota Pathological Society to be held at the University of Minnesota Medical School at 8 p.m., February 17, will include the following papers:

"Genesis of Gastric and Duodenal Ulcer with Experimental and Clinical Studies" by Dr. O. H. Wangensteen, head of the department of surgery.

"Pathologic Changes in the Gastric Mucosa in Association with Gastric and Duodenal Ulcer" by Dr. Robert Hebbel of the department of pathology.

BLUE EARTH COUNTY MEDICAL SOCIETY

Dr. H. B. Troost of Mankato was elected president of the Blue Earth County Medical Society at its annual business session, December 29, in Mankato. Dr. J. C. Vezina of Mapleton was elected vice president, and Dr. A. G. Liedloff of Mankato was named secretary and treasurer.

UPPER MISSISSIPPI MEDICAL SOCIETY

Meeting in Brainerd, January 10, the Upper Mississippi Medical Society elected Dr. E. G. Hubin of Deerwood president to succeed Dr. J. P. Hawkinson of Crosby.

Other officers named were: Dr. D. H. Garlock, Bemidji, first vice president; Dr. D. L. Johnson, Little Falls, second vice president; Dr. Glen Leemhuis, McGregor, third vice president; and Dr. G. I. Badeaux, Brainerd, secretary-treasurer.

WASECA COUNTY MEDICAL SOCIETY

Members of the Waseca County Medical Society, holding their annual meeting in Waseca, January 6, elected Dr. Clifford Wadd of Janesville president for the ensuing year. He succeeds Dr. R. O. Spittler of New Richland.

Dr. H. M. McIntire of Waseca was elected vice president, and Dr. George Olds, Waseca, was renamed secretary-treasurer.

WINONA COUNTY MEDICAL SOCIETY

Dr. George L. Loomis of Winona is the newly elected president of the Winona County Medical Society, succeeding Dr. H. W. Satterlee of Lewiston.

Other officers elected at the annual meeting of the society, January 5, in Winona are: Dr. H. J. Roemer, vice president; Dr. John A. Tweedy, secretary; and Dr. R. H. Wilson, treasurer.

Dr. H. O. McPheeters of Minneapolis gave a paper on "The Treatment of Varicose Veins and Ulcers."

About forty persons attended the joint dinner of the medical society and auxiliary at the hotel preceding separate meetings of the two groups.

WASHINGTON COUNTY

At the regular monthly meeting January 13, 1942, the scientific program consisted of two colored films on surgery. One was titled Sub-total Gastrectomy for Perforating Duodenal Ulcer, taken at the Lahey Clinic, Boston, and one Vaginal Repair of Cystocele and Rectocele by Dr. Arthur H. Curtis, Northwestern University Medical School. These two films furnished an enjoyable and profitable evening for the members.

The question of vaccination in this county came up for serious consideration. It was decided that every effort should be made to have all the children in the city and rural schools vaccinated and the school boards and teachers were to be approached to give all assist-

ance possible in this matter. Besides that, posters, talks, and articles in the papers will be used as media to further convince the people that now, right now, we are in much need of this protection.

SIXTEENTH ANNUAL MEETING NATIONAL CONFERENCE ON MEDICAL SERVICE*

Sunday, February 15, 1942

Program

Morning Session—9:00 a.m.

Registration

1. The Relation of the Physician to Military, Civilian and Industrial Health
   (1) Procurement and Assignment of Physicians for Military Service
   Sam F. Seeley, M.D., Executive Officer, Procurement and Assignment Service, Washington, D. C.
   (2) Civilian Defense
   (a) Civilian
   (b) Hospitals
   (c) Emergency Medical Squads
   Graham L. Davis, Hospital Consultant, W. K. Kellogg Foundation, Battle Creek, Michigan
   (3) Industry's Problem in Maintaining Adequate Medical Care
   (a) Non-Defense Projects
   John R. Nilsson, M.D., Chief Surgeon, Union Pacific Railroad, Omaha, Nebraska (Tentative)
   (b) National Defense Projects
   W. D. Norwood, M.D., Medical Director, DuPont Company, Elwood Ordinance Plant, Joliet, Illinois (Tentative)

2. The Role of the State Medical Society and State and City Departments of Health in National Defense
   (1) State Medical Society
   W. P. Wherry, M.D., President Nebraska State Medical Society, Omaha, Nebraska
   (2) State Department of Health
   W. L. Bierring, M.D., State Health Officer of Iowa, Des Moines, Iowa (Tentative)
   (3) City Department of Health
   Herman N. Bundesen, M.D., President, Board of Health, Chicago, Illinois

Dinner—12:15 p.m.

Afternoon Session—1:30 p.m.

3. President's Address—Harold M. Camp, M.D., Monmouth, Illinois

4. Report of Nominating Committee; Annual Election of Officers; Selection of Place for 1943 Meeting

5. Rejected Selectees and Their Rehabilitation for Active Military Service
   (1) Local and Induction Board Examinations
   Samuel J. Kopetzky, M.D., New York City (Tentative)
   (2) One Million Rejected; What Per Cent May Be Salvaged:
   (a) By Personal Physician or Dentist Prior to Induction
   George Baehr, M.D., New York City (Tentative)
   J. R. Blayney, D.D.S., Chicago, Illinois
   (b) Following Induction
   L. D. Redway, M.D., Ossining, New York (Tentative)

6. The Role of the Medical, Dental, Nursing Schools and Hospitals in Anticipating the Acceleration of Training
   (1) The Need for a Trained Personnel to Care for the Health of the Military
   J. R. Darnall, M.D., Lt. Colonel, Medical Corps, Washington, D. C.
   (2) Status of Pre-Medic, Medic and Dental Students, Internships and Residencies During the Emergency
   Leonard Rowntree, M.D., Chief, Medical Division, Selective Service System, Washington, D. C. (Tentative)
   (3) What the Medical, Dental and Nursing Schools May Do to Hasten the Graduation of Their Respective Students
   Fred C. Zapffe, M.D., Chicago, Illinois (Tentative)

WOMAN'S AUXILIARY

Mrs. John J. Ryan, *President*
Saint Paul, Minnesota
Mrs. L. R. Boies, *Publicity Chairman*
Knollwood, Hopkins, Minnesota

OUR ROLE IN DEFENSE

Now that war is a reality, we, no doubt, hear many say—"What can I do for Defense?" And all around us, we see a general scrambling, grasping for something, we know not what, which is very confusing.

Let us pause for a moment and "take stock" so to speak, of our own activities. All or most of us have definite home responsibilities which we cannot and should not ignore. Our Defense begins there.

First, let us promote emotional stability and good morale by our positive, "make-the-best-of-it" attitudes.

Restrictions may be inconvenient, but somehow nothing ever becomes too bad, and we still have everything to be thankful for in this great country of ours. Let us be alert regarding instructions given us for emergencies, and coöperate in every way possible, so that we will be prepared.

Food in safeguarding health is as important as it has always been—wholesome, balanced meals mean healthy bodies and beings. Thousands of women are attending Red Cross nutrition classes, learning what to eat, and how to feed people for proper nutrition. Plan simple, nourishing meals for your family. Eliminate wastefulness, and utilize or cut down on leftovers. Speaking of conservation, watching unnecessary lights will reduce your electric bill. You can conserve on heat. Do you take good care of your equipment—in fact, of everything—to make it last longer? We have a fine opportunity to learn a good lesson in thrift today.

Remember, too, your tendency toward hoarding may

(Continued on Page 148)

(Continued from Page 146)

bring about more restrictive buying in certain household commodities and, eventually, rationing. Be patriotic by *not hoarding.*

Let us be able to say to ourselves—"I am doing a good job of Defense at home by promoting emotional stability and good morale, preventing wastefulness by conserving and not hoarding, feeding my family properly and simply."

In addition, some of us may still be able to assist in national protection and defense through civic service outside the home.

The task of war can be shortened by your and my coöperation and concentration in concerted action!

COUNTY NEWS

East Central

The East Central Auxiliary met December 4, with Mrs. Gray at Cambridge. Mrs. A. B. Roehlke, Elk River, presided. It was decided to do Red Cross knitting at each meeting. A drive to put *Hygeia* magazine in more schools, offices, and libraries, was to be undertaken. New chairmen appointments were Mrs. W. P. Gardner, Anoka, *Hygeia,* and Mrs. Gordon Tesch, Elk River, Publicity.

Ramsey

The November meeting of Ramsey County Auxiliary was held at the home of Mrs. Phillip C. Roy, 327 Woodlawn. Dr. W. A. O'Brien, University of Minnesota, in his usual genial manner, talked on Nutrition. Mrs. Carol Brink, authoress of several children's books, spoke on that subject. Later, tea was served.

Philanthropic Tea.—It must be said that Ramsey County Auxiliary certainly is foresighted—yes, and very ambitious, to put on their philanthropic project so closely following the holidays.

On Sunday, January 11, a beautiful and well-attended Silver Tea for Philanthropy was held at the home of Dr. and Mrs. Harry B. Zimmermann, 1530 Edgcumbe Road, Saint Paul. Seven hundred invitations, to all members of the Ramsey County Medical Society and their wives, were issued. Mrs. Bernard E. O'Reilly was general chairman for the event. Those in charge of invitations were: Mmes. Harold F. Flanagan, Joseph Ryan, A. A. Kugler, H. J. Prendergast. Mmes. Robert Grau and F. W. Lynch were responsible for table arrangements; Mrs. N. P. Bentley for patronesses; the dining room was taken care of by Mmes. Joseph N. Gehlen, G. E. Harmon, R. T. Muller, B. B. Souster, E. R. Steiner, C. R. Tifft, Charles W. Wass, and James V. Watson. Hostesses included Mrs. Mark E. Ryan, President of the Auxiliary, Mmes. C. K. Williams, Eugene Scott and C. L. Cain.

The following honored guests and former presidents poured tea: Mmes. H. P. Ritchie, Frank E. Burch, E. C. Eshelby, Edward Schons, A. G. Schulze, E. M. Hammes, Arnold Schwyzer, W. H. Hengstler, W. C. Carroll, E. V. Goltz, Asa M. Johnson, E. H. Bohland, John J. Ryan, A. E. Nichols, George Earl, C. Harry Ghent, and L. G. Dack.

It was a grand success!

Mower

In October, the Mower County Auxiliary met for a 1:30 dessert luncheon. Reports on the State Auxiliary Board meeting held in St. Paul were given by Mmes. C. C. Allen and C. L. Sheedy who had attended. A talk on Nutrition was presented by Mrs. L. G. Flanagan. For the remainder of the afternoon, Red Cross sewing was done.

"Current Medical Legislation" was the subject of the talk given by Mrs. J. G. W. Havens at the November meeting of the Auxiliary at the home of Mrs. James Morrow, 808 So. Kenwood Ave., Austin. This was preceded by dessert luncheon. After the business meeting, the usual Red Cross sewing was done.

Hennepin

The Philanthropic Committee, of which Mrs. F. L. Gilles is chairman, with the help of volunteer auxiliary women must have been super sales people at the annual sale of Glen Lake Sanatorium handwork, at Dayton's in November. The proceeds that are returned to the patients who made the articles netted a record sum. The articles included needlework, carving, embroidered linens and knitted articles. Other members of the committee were: Mmes. F. J. Anderson, K. J. St. Cyr, Harold Leland, K. W. Anderson, Moses Barron, Myron Lysne, E. S. Mariette, Fred Erb.

At the December meeting of the Auxiliary, a Silver Tea was held at the Medical Lounge for Sarahurst, a rehabilitation home for former patients of Glen Lake. Enough money was collected to buy a new chair for the Hennepin County Auxiliary room at the home, and to present five dollar gift certificates, together with some handkerchiefs, to each of the three women occupants. In addition, it was possible to give to each of the five men at the home a crisp one dollar bill.

The program included the reading of "Mother of the Smiths" by the popular Mrs. Roy Jones, and Christmas songs by the Auxiliary Octet.

Tea chairman and hostesses were: Mmes. Carl Laymon, A. E. McDonald, and J. R. Peterson.

The loyalty and enthusiasm of the members of the Auxiliary can certainly not be minimized. For, the day after New Year's, in addition to being a very cold day, eighty-six women attended the January luncheon meeting at 510 Groveland.

Mrs. J. C. Giere, an accomplished pianist, and member of the Auxiliary, presented some beautiful piano selections. Mrs. Viola Thompson, Activities Chairman of the Junior Red Cross, told of her work. Mrs. R. L. Wilder had charge of the luncheon, and Mmes. J. M. Hall and Horace Newhart, acted as hostesses.

The Consumers' Guide, Department of Agriculture publication, says, "You usually have to drink two cups of tomato juice to get as much *vitamin C* as you get from one cup of orange juice. But of course you want to figure costs per cup, too."—*Science News Letter,* January 24, 1942.

OF GENERAL INTEREST

Dr. Wybren Hiemstra of Minneapolis has been certified by the American Board of Radiology.

* * *

A daughter, Susan Christine, was born to Dr. and Mrs. Edward T. Evans of Minneapolis, December 27.

* * *

Dr. and Mrs. Phillip Hallock of Minneapolis are the parents of a daughter, Jane, born January 8.

* * *

Dr. C. E. Caine is the new mayor of Morris. Prior to assuming the duties of that office last month, he was a city commissioner.

* * *

Dr. Frank J. Hirschboeck, of Duluth, recently was named a member of the state teachers' college board. The appointment was made by Governor Stassen.

* * *

Dr. Elizabeth C. Lowry of Minneapolis has become associated in practice with Dr. Edward Dyer Anderson, with offices at 301 Kenwood Parkway, Minneapolis.

* * *

Honored for outstanding service to Saint Paul's Jewish community, Dr. William Ginsberg of Saint Paul received an award from the Jewish War Veterans Post 162 at a special ceremony, January 13.

Dr. George E. Rogers, medical fellow at the University of Minnesota Hospitals, married Miss Margaret Wheatley in Toronto, January 3.

* * *

Dr. Stanley S. Chunn of Pipestone, first lieutenant, who was assigned to Fort Omaha, Nebraska, has been relieved from active duty with the United States Army Medical Corps.

* * *

Dr. Ancel Keys, director of the laboratory of physiological hygiene at the University of Minnesota, has been appointed special consultant on foods to the Secretary of War.

* * *

Dr. Horace Newhart of Minneapolis attended a meeting of the board of managers of the American Society for the Hard of Hearing in Washington, January 18.

* * *

The marriage of Dr. Ralph V. Platou and Miss Joanne Pierson of Minneapolis took place January 23 in the Hennepin Avenue Methodist Church. Dr. Platou's brother, Dr. Erling S. Platou, was best man. Included among the ushers were Dr. Frederic Becker of Duluth and Dr. Karl E. Sandt of Minneapolis.

In attendance at the sectional meeting of the American Laryngological, Rhinological and Otological Society in St. Louis, January 21, were Dr. L. R. Boies and Dr. Horace Newhart of Minneapolis.

* * *

Major Samuel F. Seeley, who is executive director of the Procurement and Assignment Service with headquarters in Chicago, is a graduate of the University of Minnesota Medical School, Class of '28.

* * *

Dr. and Mrs. Titus Kreuzer of Marshall, together with Dr. and Mrs. C. L. Sheedy of Austin, are spending a month in Mexico City and surrounding points of interest.

* * *

Married in Minneapolis New Year's Day were Dr. Edwin G. Knight of Randall and Miss Naomi Youlton of Minneapolis. Dr. Knight is associated in practice with his father, Dr. Samuel Graham Knight, in Randall.

* * *

In Brainerd, January 10, to address a meeting of the Upper Mississippi Medical Society were Dr. Wesley W. Spink and Dr. Arild E. Hansen of the University of Minnesota Medical School. Their subjects were "Sulfanilamide" and "Rheumatic Fever" respectively.

* * *

Dr. W. Randolph Lovelace II of Rochester has been chosen one of the ten outstanding young men of the nation in 1941 by the National Junior Chamber of Commerce. Selection of Dr. Lovelace was in recognition of his work in the field of aviation medicine.

Dr. L. J. Leonard of Minneapolis recently completed a course in surgery technique, especially relating to the gastro-intestinal tract, given by the Postgraduate School of Cook County Hospital in Chicago. Certificates were given to those completing requirements of the course.

* * *

February 14 is the date set for the marriage of Dr. Harry B. Hall and Miss Betty Jane Smith of Minneapolis. Dr. Hall, a graduate of the University of Minnesota Medical school, recently returned from England where he spent nine months with the American Hospital in Britain, Ltd., at Basingstoke.

* * *

Dr. Leo G. Rigler, head of the department of radiology at the University of Minnesota Medical School, will be among the speakers at the International Postgraduate Assembly of the Southwest to be held at San Antonio, Texas, January 28, 29 and 30. He will present five papers.

* * *

Dr. Hugh O. Brown, formerly of Rochester, is now director of anesthesia at Cook County Hospital. He went to Chicago in May. At Rochester, he was associated with the Mayo Clinic as first assistant in the Section on Anesthesia.

Dr. Brown recently announced residencies in anesthesia at Cook County Hospital for complete training leading to certification by the American Board of Anesthesiology.

Dr. E. C. Rosenow of Rochester has been elected a Fellow of the New York Academy of Sciences. Election to Fellowship is a distinguished honor, conferred on a limited number of active members, who, in the estimation of the Council, "have done outstanding work toward the advancement of science."

* * *

Dr. Sheldon Harry Stuurmans, who has practiced in Erskine for the past sixteen years, has sold his practice to Dr. John Cameron of Bagley.

Dr. Stuurmans plans to continue his practice of medicine at Long Beach, California, after completing some graduate work at the University of Minnesota.

* * *

Among those attending the meeting of the Academy of Dermatology and Syphilology in New York, December 8-12, were Dr. Henry E. Michelson, Dr. Carl Warren Laymon and Dr. Louie Winer of Minneapolis, Dr. Francis W. Lynch of St. Paul, and Dr. Paul A. O'Leary and Dr. Hamilton Montgomery of Rochester.

* * *

Physicians ordered to active duty with the United States Army Medical Corps within the past few weeks include: Dr. George Harvey, Jr., of Rochester, first lieutenant; Dr. Donald Earnest Otten of Minneapolis, first lieutenant; Dr. Vincent Francis Swanson, Rochester, first lieutenant—all assigned to Corps Area Service Command Induction Station, Fort Snelling.

* * *

At the annual meeting of the active staff of Asbury Hospital in Minneapolis, the following officers were elected: Dr. H. O. McPheeters, president; Dr. Harlow J. Hanson, first vice president; Dr. H. A. Alexander, second vice president; Dr. A. N. Bessesen, Jr., secretary and treasurer. Dr. H. E. Hoffert was named to the advisory board.

* * *

Dr. William H. Guthrie of Minneapolis has become associated with the Oliver Clinic in Graceville, Minnesota.

Dr. Guthrie was graduated from the University of Kansas and interned at the Kansas City General Hospital. He has been resident physician at Fairview Hospital in Minneapolis for the past year.

* * *

The Division of Preventable Disease of the Minnesota Department of Health requests that all old typhoid and dysentery outfits be returned since, effective January 1, 1942, glycerine preservatives for stool specimens submitted for typhoid examination will be eliminated. In the future only stool specimens and not urine specimens will be examined for typhoid bacilli.

* * *

A special supply of blood plasma for civilian defense use in case of major catastrophies and sabotage accidents will be set up by the University of Minnesota Hospitals, according to plans announced recently.

Between 250 and 500 units of plasma will be stored there, Dr. Owen H. Wangensteen, head of the department of surgery, stated. The blood bank will not be in any way related to the present plasma bank now in use at University Hospitals.

Two Saint Paul lieutenants in the Naval Medical Corps have been approved by President Roosevelt for promotion from lieutenant to lieutenant commander. They are Gordon Ekblad, a graduate of the University of Minnesota Medical School in 1930, and Robert A. Cooper who is assigned to the Naval Hospital, San Diego.

* * *

Dr. Irvine McQuarrie, head of the pediatrics department at the University of Minnesota Medical School, will be in New Orleans, March 2-5, to present three papers to the New Orleans Graduate Medical Assembly. His subjects will be: "The Problems of Edema in Childhood"; "Causes and Management of Convulsive Disorders in Childhood"; and "Diseases of the Adrenal Glands in Children."

* * *

Dr. J. E. Murphy has become associated in practice with Dr. W. W. Yaeger of Marshall. Dr. Murphy received his degree in medicine from the University of Minnesota in 1940, and served his internship at the Minneapolis General Hospital. He is a native of Coleraine.

Dr. Yaeger recently remodeled and enlarged his offices.

* * *

Among those who participated in the tenth annual convention of the American Academy of Orthopædic Surgeons held in Atlantic City, January 11-15, were: Dr. Wallace H. Cole of Saint Paul, who presented a "Further Report on the Kenny Treatment of Infantile Paralysis," and Drs. Ralph K. Ghormley and Markham B. Coventry of Rochester, whose subject was "Surgical Treatment of Painful Hips in Adults."

* * *

As a representative of the speakers' bureau of the Minnesota State Medical Association, Dr. William A. O'Brien adressed students of St. Olaf's College in Northfield, January 15, on the subject, "Drugs, Quacks and Doctors."

Dr. O'Brien also addressed a Twin Cities meeting of Methodist ministers at the Wesley Temple, January 12, on the subject "Medicine and the Ministry."

* * *

Dr. Clara Nigg, bacteriologist, who is credited with discovering an influenza virus which has given scientists a new clue in their search for influenza preventative, is now doing research work at E. R. Squibb & Sons, New Brunswick, New Jersey.

Dr. Nigg did her work on influenza virus in the State Health Department laboratories at the University of Minnesota with funds furnished by the Rockefeller Institute of Medical Research.

* * *

Dr. George T. Ayres and Dr. Owen W. Parker of Ely announce the dissolution of their partnership which was begun July 1, 1908. Dr. Parker is retiring from practice and his interest in the firm of Drs. Ayres & Parker was taken over as of January 1 by Dr. Harry N. Sutherland, a member of the staff since 1913. The

new partnership is known as Drs. Ayres & Sutherland, proprietors of Shipman Hospital. Dr. William Rademaker, Detroit Lakes, was recently added to the staff of the hospital.

* * *

A course in emergency surgery was presented at the University of Minnesota Center for Continuation Study, January 19-24.

The faculty included Dr. O. H. Wangensteen, head of the department of surgery at the University Medical School; Dr. Wallace H. Cole, who spent several months in England last year as director of the American Hospital for Britains; Dr. Frederick A. Coller, University of Michigan, and twenty-five associates.

* * *

Dr. Ruth E. Boynton, who served as president of the American Student Health Association during the past year, presided at the annual meeting of the organization in New York, December 30-31. She also gave an address on defense activities as related to student health services. Dr. Boynton retired from the office of president at this session.

Another member of the University of Minnesota Health Service staff who participated in the program was Dr. John J. Boehrer, who presented a paper on "Nutrition Problems Among College Students."

* * *

Attention is called to the national Victory Book Campaign to collect books for the use of soldiers, sailors and marines at their service posts. The army and navy libraries are popular but require expansion. Fiction, biography, travel, history and informational books of all types are needed. The campaign is on and will continue until the end of April, 1942. Every public library in the country will be used as a collection center and books to be donated may be taken to the libraries. Miss Ruth H. Rosholt, Minneapolis Public Library, is State Director of the Campaign, which is sponsored by the Red Cross, the United Service Organizations and the American Library Association.

* * *

The United States General Hospital No. 26, composed of fifty University of Minnesota physicians, seven dentists and 120 nurses, will be mobilized for active service, February 15, it is announced.

Word of the mobilization was received from the United States Surgeon's General's office by Dr. L. H. Fowler, head surgeon and commander of the unit.

The group, which is to be augmented by 500 enlisted men from the Army, will be sent to Fort Sill, Oklahoma, to undergo a training course of two or three months. After completion of training, the unit is expected to be sent overseas.

Honoring members of the hospital unit, the University of Minnesota will entertain at a farewell dinner, February 10, in Coffman Memorial Union. University faculty members and the general public are invited.

Dr. Joseph Borg, assistant professor of medicine, is in charge of the unit's medical service; Miss Cecelia H. Hauge, in charge of nurses.

Presentation of the Parke-Davis Hospital Day Publicity Cup and Plaque to the Glenwood Community Hospital was an event of December 9.

The plaque was presented at a dinner meeting at Glenwood, which 175 persons attended. Dr. William A. O'Brien of the University of Minnesota Medical School was the guest speaker. Among representatives of organizations who extended congratulations to the Glenwood Hospital were A. M. Calvin, executive secretary of the Minnesota Hospital Service Association; Dr. Walter Gardner, president-elect of the Minnesota Hospital Association; and Victor Anderson, chairman of the Council on Administrative Practice.

Miss Dina Bremness, R.N., is superintendent of the hospital, which won the cup by virtue of staging the best publicity campaign for Hospital Day of any hospital in the United States and Canada in cities of 15,000 people or less. Two such awards were made, one for those in cities over 15,000 and one for those in cities under that size.

* * *

A number of gifts for medical research were recently accepted by the University of Minnesota Board of Regents. They include:

$7,000 from the Citizens' Aid Society to support research on the problem of gastric ulcer under Dr. O. H. Wangensteen, to be used over a two-year period.

$4,700 from the National Research Council for research on fat metabolism.

$2,500 from the National Confectioners Association for use by Dr. Ancel Keys in his study on diet and fatigue.

$2,000 from the John and Mary R. Markle Foundation, a supplementary grant to support Dr. Albert V. Stoesser's studies regarding water-electrolyte metabolism in intractable asthma.

$1,200 from the W. H. Barber Co. for the Sivertsen Foundation for Cancer Research.

$1,000 from an anonymous donor through the Minnesota Medical Foundation to establish a research problem in the division of Internal Medicine.

* * *

The first certificate in the Minnesota Tuberculosis Control Program was presented to Lincoln County, December 11, at a special ceremony held at Tyler.

Dr. B. J. Branton, Willmar, president of the Minnesota State Medical Association, presented the certificate of accreditation signed by Governor Stassen to M. L. Anderson of Canby, chairman of the Lincoln board of county commissioners.

The Tuberculosis Control program is a coöperative campaign of the State Association and the State Department of Health to accredit counties showing a tuberculosis mortality rate not to exceed ten per hundred thousand of population and an incidence of tuberculous infection among seniors in high school not to exceed 15 per cent. The mortality rate must be based on a five-year average and the student rate on tests of at least 80 per cent of the senior students of the county. The program is believed to be the first adopted for tuberculosis control in a human population and is patterned after the federal plan to accredit areas showing eradication of tuberculosis in cattle.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

SYMPTOM DIAGNOSIS—Regional and General. By Wallace Mason Yater, A.B., M.D., M.S. (in Med.), F.A.C.P. Professor of Medicine and Director of Department of Medicine, Georgetown University School of Medicine; Physician-in-Chief, Georgetown University Hospital; Physician-in-Chief, Gallinger Municipal Hospital, Washington, D. C.; formerly Fellow in Medicine, Mayo Foundation. Originally written by the late Wilfred M. Barton, A.M., M.D., F.A.C.P., and Dr. Yater. 900 pages. Price, $10.00. New York: D. Appleton-Century Co., 1942.

NEUROANATOMY. Frank A. Mettler, A.M., M.D., Ph.D. Professor of Anatomy, University of Georgia School of Medicine, Augusta, Georgia. 476 pages. Illus. Price, $7.50, cloth. St. Louis: C. V. Mosby Co., 1942.

THE BLOOD BANK AND THE TECHNIQUE AND THERAPEUTICS OF TRANSFUSIONS. Robert A. Kilduffe, A.B., A.M., M.D., F.A.C.P. Director Laboratories, Atlantic City Hospital; City Bacteriologist, Atlantic City; Serologist, Municipal Hospital for Contagious Diseases, Atlantic City, etc., and Michael De Bakey, B.S., M.D., M.S., F.A.C.S. Assistant Professor of Surgery, School of Medicine, Tulane University of Louisiana; Visiting Surgeon, Charity Hospital, Touro Infirmary, and Mercy Hospital, New Orleans; Associate in Surgery, The Ochsner Clinic, New Orleans. 558 pages. Illus. Price, $7.50, cloth. St. Louis: C. V. Mosby Co., 1942.

A PRIMER ON THE PREVENTION OF DEFORMITY IN CHILDHOOD. Richard Beverly Raney, B.A., M.D. Associate in Orthopaedic Surgery, Duke University School of Medicine, Durham, N. C., and Attending Orthopaedic Surgeon, Watts Hospital, Durham, N. C. In collaboration with Alfred Rives Shands, Jr., B.A., M.D. Medical Director, Alfred I. du Pont Institute of The Nemours Foundation, Wilmington, Del.; Visiting Professor of Orthopaedic Surgery, University of Pennsylvania School of Medicine, Philadelphia. 188 pages. Illus. Price, $1.00, cloth. Elyria, Ohio: National Society for Crippled Children, Inc., 1941.

AN INTRODUCTION TO DERMATOLOGY. Richard L. Sutton, and Richard L. Sutton, Jr. 4th ed. $9.00. 904 Pages. Illus. St. Louis: C. V. Mosby, 1941.

Sutton and Sutton's Introduction to Dermatology is an abbreviation of the larger book, Diseases of the Skin by the same authors. It is now presented in the fourth edition since 1932. This so-called introduction mentions almost every disease of the skin described in medical literature. Many diseases, particularly the more common ones, are well described. However, discussions of some of the less common diseases are so short and inadequate that one would have difficulty recognizing the disease from the description. The avowed purpose of the book might have been as well served by omission of consideration of these rare dermatoses.

Any classification of diseases of the skin is necessarily confused. However, it seems unnecessary, according to the present concept of the seborrheal dermatoses, to consider seborrhea and seborrheal dermatoses under

separate headings in different parts of the book. The subject of pemphigus might have been better handled. The discussion of the classification of lichen chronicus simplex is clear and helpful.

In discussing treatment of the various dermatoses the authors list almost every type of therapy, including the new developments such as the sulfonamide compounds. While this is common practice in texts on dermatology, it leaves the uninitiated with no clear idea of where to start in handling a given case. The authors continue to expound at length on the treatment of acne and seborrhea by reducing the fat intake and by the administration of thyroid, forms of therapy which have not been found successful by the majority of practitioners.

There are numerous good illustrations taken from the Suttons' book, Diseases of the Skin. No colored plates are included.

LAWRENCE M. NELSON, M.D.

COMMUNICABLE DISEASE CONTROL: A Volume for the Health Officer and Public Health Nurse. Gaylord W. Anderson, A.B., M.D., Professor and Head of the Department of Preventive Medicine and Public Health, University of Minnesota; Formerly Deputy Commissioner and Director of the Division of Communicable Diseases, Massachusetts Department of Public Health; and Margaret G. Arnstein, R.N., M.A., M.P.H., District Supervising Nurse, New York State Department of Health; Formerly Associate Professor of Preventive Medicine and Public Health and Director of the Course in Public Health Nursing, University of Minnesota. New York: The Macmillan Company, 1941. 434 pages. Price, $4.25, cloth.

The older philosophy that in order to be effective the pill must be bitter, has been carried over into the compounding of all too many medical treatises. Accordingly, the yearning for a text which at one and the same time is comprehensive but not meticulous, precise though not pedantic, systematic as a log table yet, withal, readable as a novel, has prompted many to reflect, "Some day, I'm going to write a book!" Here is such a book, within the field of communicable disease control, well worth the reading time of any physician or nurse. For the health officer, in full or part time work, this textbook will prove delightfully useful. The authors modestly state, "An attempt has been made to evaluate the various control measures as to their relative effectiveness and to outline programs that will yield the greatest return in terms of necessary expenditure." The "attempt" has succeeded.

MARIO FISCHER, M.D.

SYNOPSIS OF APPLIED PATHOLOGICAL CHEMISTRY. Jerome E. Andes, M.S., Ph.D., M.D., F.A.C.P., and A. G. Eaton, B.S., M.A., Ph.D., 427 pages. Illus. Price, $4.00, cloth. St. Louis: C. V. Mosby Co., 1941.

This book might best be described as a five-minute source of abbreviated information on nearly all pathological chemistry having some practical value in clinical medicine. It would find its best application as a quick reference source for a busy physician who can make good use of the hospital chemical laboratory.

There are a few procedures of practical importance which might well have been included such as the recent work on laboratory manifestations of shock and hemorrhage. Occasional errors in judgment of value of work in the literature such as a reference to low serum calcium as being the cause of a hemorrhagic dyscrasia and the omission of the important theory of lowered blood volume as an explanation of extrarenal azotemia are noted. A frank error is made in the statement that low blood uric acid values eliminate the possibility of gout. Nevertheless the book fills a needed place in the library of physicians who have the ability to combine clinical observations and interpretations of accurate measurements of physiological processes to arrive at a diagnosis.

ARTHUR H. WELLS.

TYPHOID DEATHS OF SEVENTY-EIGHT CITIES LOWEST SINCE 1910

Typhoid death reported in 1940 of 78 U. S. cities surveyed since 1910 were only 172, the lowest number on record. So reports the *Journal, American Medical Association* (January 17) on the basis of the 1940 census plus information from city health officers.

The *Journal* reports the rate for all cities as now "just about one-half of one point per hundred thousand of population." No typhoid outbreaks have been recorded.—*Science News Letter,* January 24, 1942.

✶ CLASSIFIED ADVERTISING ✶

REGISTERED NURSE desires position in Saint Paul as office nurse. Is studying shorthand and typewriting. Good references. Telephone TOwer 3724, Saint Paul.

* * *

PHYSICIAN WANTED—Thriving northwestern Minnesota town of 1,000. Rich surrounding community and large territory. Office space free. Excellent opportunity. Address C-102, care MINNESOTA MEDICINE.

* * *

FOR SALE—Lucrative practice. Modern hospital. Town 2,500. Excellent equipment including surgical instruments; 100 ma. x-ray machine; phoropter; Feree-Rand projector; Benedict Roth basal machine; Fischer diathermy machine. Modern office. Must see to appreciate. Address D-2, care MINNESOTA MEDICINE.

* * *

WANTED—Doctor for general practice in long established Minnesota group clinic. Salary and chance for advancement. Personal interview necessary. Give qualifications and salary expected in first letter. Address D-8, care MINNESOTA MEDICINE.

POSITION WANTED—Young lady, 21, with six months' routine laboratory training in Saint Paul, knowledge of office procedures, desires position in doctor's office in Minneapolis, Saint Paul, or vicinity. Address D-3, care MINNESOTA MEDICINE.

* * *

PRACTICE WANTED—Physician desires location in South Minneapolis for general practice. Can take over practice at once. Address D-4, care MINNESOTA MEDICINE.

* * *

FOR SALE OR RENT—An office, thoroughly equipped with diagnostic or therapeutic equipment. Located in a fine city of 20,000 population in Southern Minnesota. Present owner is forced to retire from active practice because of illness. The opportunity for introduction to a fine practice is presented at this location. Anyone interested may obtain terms and details by addressing D-7, care MINNESOTA MEDICINE.

* * *

WANTED—Physician's office or association in general practice leading to possible partnership. Address D-5, care MINNESOTA MEDICINE.

* * *

SITUATION WANTED—Graduate laboratory and x-ray technician with hospital experience desires position in Twin Cities. Address D-6, care MINNESOTA MEDICINE.